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SURGERY IN DIABETES*

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In view of the fact that approximately 4 per cent of all individuals will at some time exhibit manifestations of diabetes mellitus, a reiteration of the surgical problems involved is thought to be worth-while, especially since, as Root points out, almost every diabetic will, at sometime in his life, have a surgical procedure done upon himself.

INCIDENTAL SURGERY

Because of more complete understanding of the pathologic physiology in diabetics, together with more adequate appreciation of the metabolic processes involved, fluid and electrolyte economy, and the rectification of aberrances by proper application of dietary principles and the use of insulin, there no longer remains any contraindication to do indicated incidental surgery in a diabetic any more than in a nondiabetic. In previous years, procrastination and even total avoidance of elective surgical procedures were perhaps more justified, but with the current advances in medical therapy in diabetics, such procrastination merely defers elective procedures until such time as the patient is in an older age group, and consequently, usually a poorer surgical risk. Prior to undertaking any surgical procedure on a diabetic, it is, of course, mandatory to obtain a good preoperative evaluation of cardiac, renal, pulmonary, and diabetic status. In addition, it is advisable to forego surgery until such time as any imbalances have been stabilized and any aberrances have been rectified when possible.

SURGICAL COMPLICATIONS OF DIABETES

Conditions resulting from skin infections and conditions resulting from arterial insufficiency of the lower extremities constitute the principal surgical complications of diabetes.

With the advent of antibiotics, principally penicillin, the complications of skin infecitons can now be more safely approached with added surgical conservatism; whereas, prior to the advent of effective antibiotics and chemotherapeutic agents, early radical excision of large carbuncles was necessary in order to control the infection and the diabetes present concomitantly. The current trend has been toward early massive doses of penicillin, permitting the infection to become localized prior to incision and drainage with minimal final tissue loss. During the acute phase of such an infection, it is, of course, still necessary to observe carefully for any change in the status of the activity of the pre-existing diabetes as reflected by change in insulin requirement. Acidosis should be anticipated in diabetics who are initially seen with a rather acute skin infection or complication thereof. It is usually prudent in the treatment of these patients, who are generally diabetically unstable because of the infection present, to utilize regular insulin during the period of

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correction of any acidosis as an emergency procedure and through the time when necessary surgery is performed, continuing until the infection has become stabilized.

Probably the most important therapy of arterial insufficiency of the lower extremities is of a prophylactic nature. As soon as the diagnosis of diabetes mellitus is made in any patient, that patient should be thoroughly instructed regarding the potential danger to his feet, and even to his life, that can result from neglect. Throughout his diabetic life, the patient should be constantly vigilant. He should look upon any foot infection with downright alarm. Epidermophytosis should be treated promptly and vigorously; minor infections about the nails should be given prompt attention. Careful cutting of the nails, especially of the great toe, should be done in such a fashion as to prevent ingrown toenails. Shoes should always be carefully fitted so as to avoid cramping of the toes as well as the production of blisters or other skin changes due to local pressure. The use of external heat in the form of hot water bottles, and electric pads, is extremely dangerous. This is especially true in the diabetic who has nerve involvement with impaired sensory perception. Vasoconstricting influences, such as exposure to excessive cold, smoking, and extremes of fatigue, should be avoided at all times. Adequate protection of the feet from excess cold can usually be accomplished by the use of woolen socks. At the first manifestation of ischemia the diabetic should sleep with woolen socks. The diabetic should frequently and carefully clean his feet. The use of a drying bland foot powder will help prevent the accumulation of moisture to some degree. At the onset of any skin discoloration of the toes, the diabetic should immediately notify his physician who in turn should advise that walking should not be allowed until such time as whatever vascular complications present have been safely dealt with.

In the event that gangrenous changes are present, the diabetic of today has a much better chance of early rehabilitation with a useful lower extremity than had the diabetic of as recently as ten years ago. This is attributable, in a large measure, to advances made in the study of the pathologic physiology of diabetics, nutrition, antibiotic and chemotherapeutic agents, and advances in studies of the physiology of peripheral circulation.

In cases in which there is good demarcation and no infection present, with gangrene involving one or more toes, it is not infrequently possible to produce a satisfactory transmetatarsal amputation as described by McKittrick. Such an amputation when successful results in a useful foot. Transmetatarsal amputation should not be attempted unless the ischemic process is stable and an adequate circulation is felt to be present in the foot. Various criteria have been proposed for the evaluation of foot circulation. Smithwick proposes that such amputations be reserved for individuals in whom flushing is noted in the whole foot, twenty seconds or less after the foot, which has been previously elevated for five minutes, is placed in a dependent position.

In patients with progressive gangrene or active infection, preliminary amputation, in order to control infection, can result in stabilization of the infectious-ischemic process at a level which will permit final amputation and subsequently at the transmetatarsal level. In general, the transmetatarsal amputation has been most successful in the hands of McKittrick after a period of stabilization of at least three weeks. When extensive gangrene, with or without infection, is present in a foot, successful amputation below the midleg level is not possible. A midleg amputation with a useful stump is much more desirable than is a thigh amputation since it permits the use of a prosthesis more successfully and does not result in a wheel chair existence which is the best that can be offered to many patients requiring thigh amputations.

When the gangrenous process and peripheral circulation do not permit the use of midleg amputation, then supracondylar or midthigh amputations are the only choice.

GENERAL PRINCIPLES IN AMPUTATION IN DIABETICS

Emergency amputation in diabetics is done only for the control of infection. Very infrequently, is it necessary to perform an emergency operation of any type on a diabetic until acidosis has been controlled. A period of four to six hours can make a real difference in the acidotic state with proper therapy. Definitive transmetatarsal amputation should usually wait until the patient has been stabilized for at least three weeks. During this interval much can be done to improve the general condition of such a patient. Antibiotics, particularly penicillin, play a great role in this more conservative approach to surgical therapy in the ischemic diabetic extremity. Lumbar sympathectomy is thought by many to improve collateral circulation sufficiently prior to definitive amputation to warrant its routine use. Vasodilating drugs are not receiving the enthusiastic reception accorded them a few years ago. In general one must remember that in diabetic amputation the margin of safety is not great. The success or failure of an amputation stump can depend upon attention or failure in one of many small details. A few technical points are worthy of emphasis: Avoidance of a tourniquet about the thigh in definitive amputations lessens the hazard of a local vascular damage to the femoral artery and of the effect of anoxia to the tissues of the stump distal to the tourniquet. Avoidance of unnecessary trauma to the tissues of the end of the stump is of extreme importance. The use of the gloved fingers rather than tissue forceps on skin flaps can make the difference between failure and success of wound healing. Accurate ligation of bleeding vessels, being careful not to include masses of muscles or fatty tissue, is a worth-while precaution. Tissues should be accurately approximated, leaving no dead space. In transmetatarsal amputations no dorsal skin flap should be dissected up. In thigh amputation the use of skin traction should be practiced routinely.

ANESTHESIA

In general, the avoidance of anoxia is the prime requisite in an anesthetic administered to a diabetic. Many anesthetic agents have been employed successfully. Where possible, local anesthesia is advised. Local anesthesia is, of course, contraindicated in instances where local tissue changes are present or where wound healing presents a major problem, such as in amputations. Of considerably more importance than the anesthetic agent employed is the proper administration thereof. Whereas in the hands of a trained anesthetist familiar with its use, cyclopropane is the drug of choice, in many instances it is undoubtedly true that the "occasional" anesthetist would offer more safety with an anesthetic agent with which he is more familiar. Spinal anesthesia in the form of either low spinal or one sided spinal has a definite place in diabetic amputations. Enthusiasm for refrigeration anesthesia has waned considerably.

SUMMARY

Advances made in the study of diabetes, fluid and electrolyte economy, nutrition, antibiotics and peripheral circulation have made it possible to offer diabetics requiring surgery for incidental nonrelated conditions a margin of safety comparable to that for nondiabetics.

These same advances have made the surgical approach to the diabetic with failing lower extremity circulation considerably more conservative.

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POLYPS OF THE COLON*

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SHREVEPORT

Definite proof that all carcinomas of the colon begin as a polyp is lacking. However, the evidence of such is strong, and this is the general opinion of most authorities on this subject. There is no doubt but that polyps are potentially malignant. This makes the subject one of extreme importance to all physicians, general practitioners, internists and surgeons. It is chiefly, or perhaps, only through early detection and adequate removal of polyps that the incidence and the mortality of cancer of the colon can be reduced. †In 1948, there were reported 22,860 deaths in the United States from cancer of the colon; or a rate of 15.6 per 100,000 population.

CLASSIFICATION

Intestinal polyps have been described in the literature under many names, such as "disseminated polyps," "multiple polyposis," "multiple adenomas," "diffuse adenomatosis," and "polyposis." It is hoped that a standard nomenclature can be obtained which will eliminate much confusion.

Polyps may first be classified as acquired or inherited. In the acquired there are one or more growths and no hereditary or familial tendency. This group is by far the larger. The inherited type, "familial polyposis," as described by Dukes, has multiple polyps and is inherited from either parent as a Mendelian dominant. The number of polyps in the latter group are up to 1000 or more. Boehme in 1950 stated that there were not quite 400 such cases reported in the literature. It is therefore apparent that one's chief interest is with the acquired group. The acquired group may be classified as single or multiple. Polyps may be further classified on an anatomical basis as sessile or pedunculated. In both the inherited and acquired form, the growth is an adenoma or a papilloma, and both are of epithelial origin. The adenomas are by far in the majority.

INCIDENCE

The frequency of polyps of the colon, the differences in the sexes, the location of the growth, and the age of the patient have been variously estimated. In over 21,000 autopsies performed by various investigators covering all ages and both sexes, the incidence of polyps of the colon was about 6 per cent. If hyperplasia in old people is classified as a true polyp, the incidence would be much higher. In about 60 per cent of the cases, the growth is single. The clinical incidence of polyps in patients over forty years of age is approximately 12 per cent. All authorities agree that the majority are found in the rectum, sigmoid, and the descending colon. Ewing states: "The chief seat of intestinal polyposis is in the rectum, ..." The disease is more common in men than in women, the proportion being about 2½ to 1. Also, approximately 25 per cent of all cases of cancer of the colon will show one or more benign polyp.

The incidence and distribution of polyps in children vary somewhat from polyps in adults and therefore will be discussed very briefly. The disease is extremely rare in children under one year of age. Its frequency increases with age, but is still relatively infrequent in children under ten years of age. In those children who do have the disease, the majority of growths are found in the rectum. The growth is single in about 70 per cent of the cases and is almost invariably pedunculated. The pedicle may grow as long as 4 or 5 inches due to the constant traction exerted by the bowel. The growth in the vast majority of cases is a simple adenoma. Bleeding from the bowel is the principal symptom; and in children who have this complaint, one or more polyp will be found in approximately every fourth child examined. Therefore, it is obvious that even though polyps are infrequent in children in the general

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population, they are quite common in children who pass blood in the stools.

PATHOGENESIS

The pathogenesis of polyps was carefully studied by Atwater and Bargen in 241 cases autopsied at the Mayo Clinic in 1945, and they concluded that the epithelium of the colon passes through a gradual series of changes in the development of a polyp and in the further development of malignancy. Their complete report is of great interest, and this subject deserves further study by other investigators. All agree that the greater the branching of the glands, the higher the degree of malignancy; and that the greatest epithelial deviation toward carcinoma occurs most often in the peripheral portion of the polyp. The mucosal stroma in benign polyps is not markedly changed until large polyps have formed. Then the polyps are frequently the seat of inflammatory changes and hemorrhages. Necrosis may be seen microscopically.

DIAGNOSIS

The cardinal symptom of polyps of the colon is fresh blood in the stool. The amount is usually small and usually on the outside of the formed stool or appears at the end of the stool. In Meckel's diverticulum the blood is mixed with the stool. Diarrhea is not a common symptom except in the hereditary or familial type of polyposis. In ulcerative colitis, diarrhea is the predominant symptom, and the stool is mixed with blood and mucus. Secondary anemia is noted in some cases. Pain is an unusual symptom. A mass protruding from the rectum is at times the first symptom, and rarely, obstruction brings the patient for medical aid. Prolapse of the rectum in young children may be the initial symptom, as illustrated in one case which will be given.

In the differential diagnosis, one must consider the following: adenocarcinoma; sarcoma; fibroma; myxoma; lipoma; angioma; myoma; endometrioma; neurofibroma; teratoma; enterogenous cysts; psuedopolyposis, which occurs at times due to amebic dysentery, tuberculosis, chronic ulcerative colitis, or foreign body reaction; and simple hyperplasia as is frequently seen in old people and as described by Scarbrough and Klein, may also be added. When found it is usually multiple and consists of pale flattened elevations of the mucosa. Microscopically the cells have normal staining properties. Its significance is questionable, but is not infrequently seen close to frank carcinoma. Therefore, some would classify these areas of hyperplasia as true polyps. Except for this condition, and adenocarcinoma, the other conditions above are infrequent.

The diagnosis can be made in the great majority of cases by rectal, sigmoidoscopic, and x-ray examination. It should be emphasized that all patients seen with symptoms of rectal bleeding, diarrhea, a mass protruding from the rectum, prolapse of the rectum, unexplained secondary anemia, and an unexplained abdominal pain, should be thoroughly studied by sigmoidoscopic examination and by double contrast x-ray examination of the colon. To the above list of indications for the study of the colon might well be added all cases of hemorrhoids, anal fissures, and anal fistulae. It is evident that bleeding may well be ascribed to one of these causes, and the actual cause may be a polyp or a carcinoma higher up. It should be emphasized that the finding of a rectal or sigmoidal polyp on sigmoidscopic examination should be a further indication for x-ray studies. By using the double contrast technique, x-ray diagnosis in the best hands is about 80 per cent for moderately sized and large polyps, located above the rectum. Small polyps, 1 and 2 millimeters in diameter, can not be diagnosed by x-ray. The study should therefore be repeated often in suspicious cases where a diagnosis can not otherwise be made.

TREATMENT

The treatment is based upon the knowledge that polyps are potentially malignant. The treatment depends upon the size and location, upon the microscopic findings of a biopsy, upon the number of polyps present, upon the anatomical type (whether ses-

sile or pedunculated), and upon the general condition of the patient.

The size of the polyp does not indicate that it is benign or malignant. Neither can one tell a malignant polyp by its gross appearance.

If the biopsy of a sessile polyp shows frank malignancy, the treatment of choice should be a colectomy; either a right, left, or total, depending upon other factors. Many sessile polyps can be cured by fulguration if located on the posterior wall and below the peritoneal reflexion. Fulguration of sessile polyps on the anterior wall is extremely hazardous to vital structures, and fulguration above the peritoneal reflexion can easily lead to perforation. If used under these conditions, the dangers should be kept in mind and extreme care should be exercised. Fulguration of a small sessile polyp must not be too deep. Clinical judgment and the use of a machine with which one is familiar is essential. Large sessile polyps and those located high, say 20 to 25 cms., are best treated by a segmental resection especially if a biopsy shows carcinoma in situ.

Pedunculated polyps may be fulgurized at any location if care is taken to leave a little stalk. A small amount of stalk will slough from the distal fulguration. Snaring is often equally as successful except that bleeding may at times prove troublesome. A combination of snaring and simultaneous fulguration is an excellent method. A pedunculated polyp that shows cancer in situ or adenoma malignum will be cured by simple removal at the stalk. If, however, cancer is found in the stalk, one is dealing with a major surgical problem. A colotomy with removal of the polyp and fulguration of the pedicle is sufficient for a high pedunculated polyp if it is benign or shows only carcinoma in situ with no involvement of the stalk.

Swinton has treated 22 cases successfully which showed early malignant change, by local removal and has followed his cases up to seven years. He has reported no recurrences.

If it is necessary to go into the abdomen, transillumination should be available. P. A. Rosi of Chicago also recommends examination with a scope through openings made at the junction of the sigmoid and descending colon, in the middle of the transverse colon, and perhaps in the middle of the ascending colon.

For a polyp showing frank malignancy, a hemicolectomy is the procedure of choice. For multiple polyposis or familial polyposis, there are two schools of thought. Most surgeons interested in this work advise a total colectomy, leaving the rectum, and treating the polyps in the rectum by fulguration, unless there is frank carcinoma present in the rectum. In this case removal of the rectum is mandatory. A few think it is better to do a total colectomy including removal of the rectum. The reason given is that the rectum is the most likely place to develop a carcinoma, that if left it must be observed and treated nearly constantly and continuously, and that the end result is no better than a good functioning ileostomy, as most patients who have their rectums left, have five or more loose watery stools per day. However, as stated, the majority, by far, favor leaving the rectum if possible.

It should always be remembered that once a polyp is found the patient should be examined with the sigmoidscope and by x-ray periodically the rest of his life. The interval should be about six months.

CASE REPORTS

A few cases shall be presented briefly to illustrate typical features of the disease.

A child two and one half years of age who had recurrent prolapse of the rectum was found to have one large pedunculated polyp in the rectum and another at the recto-sigmoid. After removal, the prolapse did not recur.

Another child, four years of age, came for study because of rather profuse rectal bleeding. A barium enema study revealed a large polyp in the sigmoid colon. At surgery, after difficulty, because transillumination was not available, the polyp was found in the left side of the transverse colon and the base of the stalk was at the splenic flexure. This illustrates the fact that polyps in children at times have extremely long pedicles, and also points

out that transillumination should be available in the operating room.

In another child, two and one half years of age, who came for examination because of rectal bleeding, a pedunculated polyp was removed from the rectum and another from the lower sigmoid. Several months later, bleeding recurred. Examination revealed a rather large pedunculated polyp in the recto-sigmoid which was obviously missed at the first examination. After the polyp was removed there has been no further bleeding. This case emphasizes that frequent reexamination is often necessary.

In 1943, a white male, twenty-nine years of age was found to have a small pedunculated polyp 10 inches from the anus. It was removed with a biopsy forcep, and the pathological diagnosis was adenoma malignum, grade I. Even though the patient has persistently refused further study, he is in apparent good health and is likely one who has been cured by a very simple removal of the growth. Other similar cases since then, which were benign and those that showed carcinoma in situ with no involvement of the stalk, have been treated by snaring and fulguration. Follow-up examinations have been done at regular intervals and no recurrence has been found, as yet. The cases showing carcinoma in situ have been carefully followed on a mean average of less than two years.

A white female, fifty years of age, was seen for rectal bleeding which obviously came from a small posterior anal fissure. Procto-sigmoidoscopic examination revealed a polyp in the rectum. This indicates why each case which presents himself with the complaint of rectal bleeding should have a thorough examination of the rectum and colon, even though an obvious cause of the bleeding is easily found.

Another white female, forty-two years of age was operated upon for a complete strangulated large bowel obstruction. At surgery a large carcinoma of the sigmoid was found with distant metastasis, intussusception of the sigmoid, multiple polyps of the colon, and a papillary cystoadenocarcinoma of the left ovary. This patient gave a history of intermittent diarrhea of two years' duration, with mucus and blood in the stool, for which she sought no medical aid. This case points out what we all know, namely that many carcinomas of the colon reach the surgeon too late. It further emphasizes that all cases of unexplained or prolonged diarrheas should have both sigmoidoscopic and x-ray examinations of the colon.

SUMMARY

1. Twenty-two thousand eight hundred and sixty persons were victims of cancer of the colon in 1948. True polyps are at least potentially malignant and it is reasonable to assume that 50 per cent or more of these deaths could have been prevented had each of the victims been sigmoidoscoped and studied by x-ray examination by the first physician he consulted.

2. It is hoped that a standard nomenclature can be obtained.

3. The conditions which may be confused with polyps have been listed.

4. In 21,793 autopsies covering both sexes and all ages, approximately 1200 cases had one or more polyp of the colon, an incidence of about 6 per cent (If hyperplasia in old people is classified as a true polyp, the percentage would be greatly higher).

5. In approximately 60 per cent of the cases, the growth is single.

6. In patients over forty years of age, the clinical incidence is probably 12 per cent or higher.

7. The diesase is more common in men than in women.

8. The majority of polyps of the colon are found within reach of the sigmoidoscope.

9. Polyps of the colon are rare in children, are almost invariably pedunculated, are usually single, are almost always benign, and the majority are found in the rectum. In children who pass fresh blood in the stools, polyps are frequently found.

10. Atwater and Bargen made a splendid contribution in studying the pathogenesis of polyps of the colon. Further study seems indicated.

11. The cardinal symptom of polyps of the colon is fresh blood in the stool. A careful survey of each patient with this presenting symptom is in order. The vast majority can be diagnosed by rectal, sigmoidoscopic, and x-ray examination.

12. The proper treatment varies from local removal to very radical bowel surgery depending upon the size, location, number of polyps present, the pathological findings, the anatomical type of polyp, and the general condition of the patient.

13. No examination of a patient, espe-

cially one forty years of age or older, should be termed complete without a sigmoidoscopic examination.

14. Once a polyp is found, the patient should be examined periodically the rest of his life.

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BRONCHOSCOPY IN PULMONARY DISEASES*

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The use of the bronchoscope as an aid in the diagnosis and treatment of diseases of the lung has been a development of the last twenty-five years. Before that time the bronchoscope was used chiefly for the removal of foreign bodies. The modern technique originated by Chevalier Jackson and developed by him, Gabriel Tucker, Louis Clerf, and others has made bronchoscopy indicated in practically every disease of the lung at some time during its course in some particular patients. Today bronchoscopy is recognized as a necessary and accepted diagnostic procedure.

In dealing with intrathoracic disease the internist can tap, look and listen on the outside; the roentgenologist can, in a sense, look through the patient and the bronchoscopist can look inside the lungs and can bring up specimens of tissue and uncontaminated secretions for laboratory study. This completes a diagnostic team never before equaled for coping with pulmonary disease. Adding the surgeon, completes the treatment team.[1]

Contraindications to bronchoscopy in disease do not exist if the bronchoscopy is really needed.

DIAGNOSIS

Diagnostically bronchoscopy may be done to:[2]

1. Diagnose the presence of disease or its nature by appearance, biopsy, or aspiration of secretions.
2. To define the status of known disease, as the condition of bronchi in tuberculosis or the patency of an abscess cavity.
3. To localize disease.

The first bronchoscopic examination is primarily a diagnostic study; however, treatment may also be accomplished.

*Presented at the Seventy-first Annual Meeting of the Louisiana State Medical Society, New Orleans, May 9, 1951.

Unfortunately, there is frequently a delay in the early diagnosis of many pulmonary lesions. This is particularly true in cases of pulmonary cancer when prognosis depends so heavily on early diagnosis. In 500 patients studied by Lell[3] because of various types of pulmonary symptoms over 100 could be relieved only by surgical intervention, and 62, or 12.4 per cent, had cancer of the lung. To prevent this delay the alert cooperation of the diagnostic team mentioned above is necessary. If we are going to make any progress in the early diagnosis we must become more liberal in advocating bronchoscopic examination at early states of disease.

Approximately 75 per cent of primary bronchogenic carcinoma is central in location which means that they produce some form of change in the involved structures that are visualized on direct inspection. In those central cases in which biopsy is not possible and in the 25 per cent comprising the peripheral group, positive diagnosis may often be made by cytologic studies of the bronchial secretions. Herbut and Clerf[1] obtained 83 per cent positive results from tumor cell study alone.

With the advent of cytological study of bronchial secretions a most important advancement in the early diagnosis of carcinoma was made and should be more widely used. Bronchoscopy is without doubt the most important single procedure in the diagnosis of cancer of the lung. Approximately 80 per cent of the cases can be diagnosed by these means.[5]

Any patient in whom carcinoma is suspected should not be observed but should be considered an urgent case. The short period of two or three days may make the difference between a localized operable lesion and a metastatic disease. When cough persists think of cancer. When you think of cancer use the bronchoscope.

Other lesions in which diagnosis is dependent upon bronchoscopy are:

1. Middle lobe syndrome,[6] which is an obstructive pneumonitis with associated suppuration of nontuberculous origin. Cough is usually the first and most important symptom. Bronchoscopic findings are those of constriction of the middle lobe bronchus. Treatment is primarily surgical.

2. In adenoma and cylindroma of the bronchus, bronchoscopy is the only means of establishing the diagnosis clinically.

3. Tuberculosis. With the introduction of antibiotics in the treatment of tuberculosis bronchoscopy has become of even greater importance. Because of the danger of the prolonged use of the antibiotics one must be certain of the diagnosis before their use. Often diagnosis can be made only through bronchoscopy. Bronchoscopy is indicated for any person with tuberculosis who presents the history or physical findings suggestive of bronchial obstruction. It is advisable in all cases in which tests of the sputum are persistently positive even though the pulmonary lesions appear to be healing clinically and roentgenographically. It is indicated in all cases in which operation is to be undertaken in order to determine the presence or absence of tracheal or bronchial involvement. It is of value in the study of tracheobronchial tuberculosis when the patient is undergoing treatment.

4. In aortic aneurysm and congenital anomalies bronchoscopy may be the first clue to the cause of bronchial compression.

5. Bronchogenic cyst. All patients with bronchogenic cysts should be thoroughly studied and followed; since the cysts are felt to be harmless their removal is not indicated; however, Clagett and Moersch[7] found carcinomatous changes in 4 per cent of their cases. The importance of diagnosis of these changes is obvious.

6. In fibrocystic disease of the pancreas, according to Atkins[8] bronchoscopy is of definite value in diagnosis and treatment. The bronchoscopic findings are diagnostic and may be necessary to establish a positive diagnosis. The secretions are very tenacious and often cannot be expectorated. Bronchoscopy may afford relief and prolong life by removing them.

7. It is also indicated prior to aerosal treatment. Before treatment is begun bronchoscopy should be done to determine, if

possible, the cause of the infection and to exclude foreign bodies, tumors, strictures, or broncholiths. Optimum results are obtained when the proper antibiotic is used. This can be determined only after the predominant organism is found, which is best done by bronchoscopic aspiration. In addition to the above, bronchoscopy should be done prior to or in conjunction with bronchography. Bronchography should be used only as an adjunct in the diagnosis. Any patient with sufficient pulmonary pathology to require a bronchographic study certainly merits preliminary bronchoscopic examination.

TREATMENT

Bronchoscopy in treatment of pulmonary disease is also important.

Of course, the removal of foreign bodies or benign tumors such as fibromas, adenomas, lipomas and cylindromas are well known to all of you; however, I feel that some of the other conditions in which bronchoscopic treatment is of benefit are frequently overlooked.

1. In asthma. Removal of tenacious secretions and bronchial plugs may give dramatic, though often brief relief. Dilation of a stenosed bronchi often associated with asthma usually brings prompt improvement in the asthma and the patient may remain symptom free for a long period of time.

2. Atelectasis of the newborn can be very serious. When atelectasis is massive or persistent prompt bronchial aspiration is indicated.[9] By prompt, is meant within twenty-four to thirty-six hours. Persistent atelectasis in infants and children may be a forerunner of bronchiectasis. (Holinger).[10]

3. Treatment in fibrocystic disease of the pancreas has been mentioned before.

4. Bronchoscopic drainage is of great benefit in the treatment of bronchiectasis. First, by relieving bronchial obstruction, bronchiectasis may be prevented. Second, bronchoscopy is used in conjunction with antibiotics both systemically and by aerosal to cure minimal lesions. Third, it is indicated to empty a lobe or a lung prior to surgery in more advanced lesions. It is of inestimable benefit in the continued treatment of extensive disease.

SUMMARY

I have attempted to show in this paper that bronchoscopy has advanced in leaps and bounds in the last twenty-five years, is definitely of value in the diagnosis of many pulmonary diseases, and is essential for the early diagnosis of cancer of the lung. Bronchoscopy is also a great help in the treatment of asthma, the treatment of bronchiectasis and atelectasis of the newborn.

Although bronchoscopy has reached these heights in a few isolated medical centers its great potential is not fully recognized throughout the country. Bronchoscopy is not a serious or painful operation and should be done without hesitation when any of the above are suspected.

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DISCUSSION

Dr. Harold G. Tabb (New Orleans): I agree with Dr. Pirkey that bronchoscopy is indispensable today in the diagnosis and treatment of pulmonary disease. The bronchoscope is as necessary in the management of pulmonary disease as the cystoscope is in urinary disease or as the vaginal speculum in gynecological disease. Evidence obtained from bronchoscopic examination is vitally import-

ant to correlate with radiographic and clinical findings in arriving at an acurate diagnosis of intrathoracic disease. In many instances evidence obtained at bronchoscopy is the clinching evidence for diagnosis.

As Dr. Pirkey has brought out, bronchoscopy has assumed greater importance in recent years by the development of a cytologic examination of bronchial secretions for cancer of the chest. Desquamating carcinoma cells can now be obtained through the bronchoscope in a high percentage of cases for study by Papanicolaou's technique. With the angle telescopes which can be introduced through the bronchoscope for examination around corners into secondary branch bronchi, there is little of the endobronchial tree which cannot be visualized by the endoscopist today.

In tuberculosis, bronchoscopy certainly has one of its greatest fields of usefulness. Here, as Dr. Pirkey pointed out, bronchoscopy is important to determine progress of the disease as well as a guide to surgical intervention. It has been my experience that in early tuberculosis, actual lesions are rarely found but a change in the normal endobronchial contour, such as some bronchial obstruction from compression by the hilar glands, is a frequent finding. This may be treated through the bronchoscope in some cases, and the obstruction removed, preventing any possibility of atelectasis.

In addition to the lesions already mentioned by Dr. Pirkey as manageable by bronchoscopy, I might mention bronchoesophageal and tracheoesophageal fistulae which are excellently demonstrated by means of the bronchoscope.

Bronchoscopy has made great strides in the past few years and it is gratifying to see the medical profession putting the confidence into it which it deserves. I think it will continue to justify that confidence if the medical profession will continue to use it at the earliest sign of pulmonary disease. It is a relatively minor procedure in trained hands, but offers a major contribution to the problem of diagnosis.

SURGERY OF SUPPURATIVE PULMONARY DISEASE*

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It is becoming increasingly obvious to all physicians that patients with suppurative disease of the lungs constitute a fair percentage of their practice. This group of diseases generally comprises, bronchiectasis, lung abscess, infected pulmonary cysts, which occur fairly frequently. To these should certainly be added lipoid pneumonites and granulomas, mycotic infections of the lung, and chronic suppurative pneumonitis, or more commonly known as so-called unresolved pneumonias. Within the past decade a great deal has been written on various phases of this subject, with particular emphasis on the good results of resection of the disease process. This has in large measure been due to a number of factors. The most important of these have been proper preparation of the patient for operation, improvement in anesthetic management and operative technique, and finally, increasing experience in the postoperative management of these patients.

BRONCHIECTASIS

Bronchiectasis is a chronic disease and its resultant changes in the bronchi and lungs are in the majority of instances permanent. It vies with tuberculosis as to importance. It may affect persons of all age groups but usually the onset of the disease can be traced back to childhood, as having followed severe pneumonitis or one of the acute infectious diseases, such as whooping cough and measles.

Bronchiectasis is characterized by dilations of a portion of the bronchial tree. It is a recognized fact that in early cases of bronchial infections, dilatation of the bronchi may ensue, and be functional and reversible.[1] After repeated episodes of infection the changes become irreversible, as a result of destruction of the elastic element in the bronchi and replacement by fibrous tissue. As the process progresses, due to recurrent episodes of inflammation, pneumonitis, atelectasis, and destruction of adjacent and peripheral pulmonary tissue occur.[2, 3]

The incidence in the sexes is of little significance, as it is approximately equal in both groups. The disease is chiefly one which occurs in the younger age groups. The average age in reported series is about 30 years. However, this does not represent the age of the onset of the disease, which undoubtedly ranges fifteen to twenty years

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lower. The disease is fairly common in older age groups—but with few exceptions the group above 55 years is rarely considered for surgical eradication of the disease process.

The chief complaint of patients with bronchiectasis is usually chronic cough with expectoration. Expectoration characteristically varies with changes in position as drainage is facilitated. The amount of sputum may be as much as 10 ounces or more daily. Hemoptysis is frequent and may on occasions be massive. Foul sputum is a predominant feature of the more advanced cases. Symptoms of chronic sinusitis may be present.

The physical findings in many instances, as well as roentgenograms, show nothing of note. In the advanced cases, clubbing of the fingers may be prominent. Signs of sepsis are rarely present, except during acute pulmonary exacerbations of the disease. Pulmonary signs are usually limited to moderate changes in the breath sounds with fine or coarse rales in the area of involvement. In the plain roentgenogram, increased bronchovascular markings may be an indication of the presence of the disease process. Examination of the sputum usually elicits little or no information of value.

The diagnosis of bronchiectasis is made on the basis of the symptomatology, and the physical, ronetgenographic, bronchoscopic and bronchographic observations. The presence of severe symptoms with little or no physical findings should suggest the diagnosis of bronchiectasis. Bronchoscopy may demonstrate organic obstruction, changes in the bronchial mucosa, and the presence of purulent secretions, and in itself is not diagnostic. The essential diagnostic method is bronchography. It is extremely important that the entire bronchial tree be filled and visualized, thus the full extent of the pathologic process is outlined. This is extremely important, as it will determine the type of case which is suitable for surgical excision of the disease process.

The type of treatment employed is based on the severity of the symptoms, the degree of bronchiectasis, and the physical condition of the patient. There are essentially two groups of patients in which conservative or medical management should be the procedure of choice. The first group comprises children below 8 years of age, in which the changes in the bronchi are more than likely reversible and no permanent damage to the lung is found roentgenographically. These patients frequently respond to conservative management, which comprises proper diet, postural drainage, use of antibiotics and chemotherapeutic agents. Very often after this type of management, the amount of secretion will sharply decrease, and the caliber of the bronchi will revert to normal. In any event, even though they do not respond to conservative therapy, operative resection should be delayed until the patient has reached the age of 8, the acute exacerbations of respiratory infections being controlled by antibiotic therapy. The second group comprises those individuals who have extensive bilateral disease or who are above 55 years of age and have comparatively poor pulmonary function, although resection may be occasionally performed in those patients in this group with extremely limited disease. In the larger group of patients between those previously mentioned, only significant palliation may be obtained by conservative measures, but a cure is never accomplished. Minimal symptoms never warrant a radical attack on this problem. However, in the presence of significant symptoms, surgical therapy must be considered. The more localized the disease, the more amenable it is to resection. However, even in bilateral disease limited to the two basal lobes, the disease can be eradicated by careful segmental and lobar resections.[4] In bilateral involvement, if the major involvement is on one side, the degree of relief obtained following resection of this portion of the pulmonary bed may be sufficient to obviate the necessity of resection on the second side.

It is quite generally accepted in most centers that the definitive treatment of bronchiectasis is surgical. That bronchiectasis is a serious disease has been well demon-

strated by Perry and King,[5] who showed a twelve year period mortality of 26 per cent in nonsurgically treated cases. Similar reports were made by others.[6-8] The results from surgery have been far superior as evidenced by the reports of Churchill, Bradshaw and O'Neil,[9] Maier,[10] and Meade,[11] in which the mortality figures range from 4 per cent to less than 1 per cent.

LUNG ABSCESS

The management of lung abscess has always presented one of the most trying problems for the physician. This is particularly true of multiple lung abscesses within a lobe or lung. The conservative management of lung abscess has not given the desired results. Because of limited time, neither etiological factors in the production of lung abscess,[12] nor its incidence will be discussed, except to state that within recent years, due to improved anesthesia, better preoperative and postoperative care, and the use of antibiotics, the incidence of this condition has decreased.

In the acute lung abscess, the choice of immediate therapy lies with conservative management. What does that imply? Adequate drainage of the abscess cavity by means of postural and bronchoscopic drainage, and the use of antibiotic and chemotherapeutic agents. The type of postural drainage depends entirely upon the location of the abscess. This is a very important phase of conservative therapy. A few of the failures of conservative management of acute lung abscess can be attributed to failure on the part of the attending physician or surgeon to pay sufficient attention to this important detail. Unless adequate drainage is established, the lesion will increase in size. It is estimated that approximately 35 per cent of lung abscesses can be cured by conservative means.[3]

When shall we call a lung abscess chronic? Our views on this have changed considerably within the past several years. Up to within recent years, an abscess persisted for at least three months or more before it was termed chronic. Abscesses which are more than four or six weeks old usually will show the pathologic changes of chronicity. If during or at the termination of this period, there has been no tendency toward progressive diminution in the size of the abscess, in spite of adequate conservation therapy, resection should be advised.

The management of chronic lung abscess has always presented one of the more trying problems encountered by the surgeon. This has been especially true of multiple abscesses, since these do not as a rule respond well to conservative therapy. Multiple abscesses of the lung, usually involving one lobe or lobes, are seen fairly frequently in children who develop suppurative pneumonitis. Resection of the diseased lobe or lobes has achieved acceptance as the treatment of choice when surgical intervention becomes necessary. Abscesses of the lung when seen in individuals over 45 years of age are frequently the result of malignant breakdown. Radiologically, these abscesses have a characteristically irregular wall. A good axiom is to consider lung abscess in this age group as malignant until proven otherwise.

Another conditon which is of great concern to the clinician is the so-called suppurative pneumonitis, which gives rise to small multiple abscesses which show little tendency to resolve. Apparently trauma can be an etiologic factor. Usually, suppurative pneumonitis follows a lobar or extensive bronchopneumonia, more than likely of the Friedlander's type or microaerophylic streptococcus, which fails to resolve. These are insensitive to penicillin and frequently do not respond to streptomycin. The roentgen studies demonstrate shadows, generally lobar in distribution. No bronchiectasis can be demonstrated by iipiodol injection. The preliminary treatment is aimed at improving drainage and reducing infection. If within three or four weeks no gradual improvement is noted, pulmonary resection is indicated.

LIPOID PNEUMONITIS AND GRANULOMA

Lately, considerable emphasis has been placed on the lipoid pneumonites and granulomatous lesions within the pulmonary parenchyma, as a possible etiological factor in indeterminate pulmonary lesions. The

lesion may involve lobe or lobes. A frequent site is the middle lobe. It may occur bilaterally as was seen in one of our cases. These patients usually have a history of long standing pneumonitis, which is corroborated by roentgen evidence of a pneumonitis. One may elicit a history of administration of oily nose drops over a prolonged period, or that the patient has been accustomed to daily doses of mineral oil per oral route. Bronchoscopic examination may not reveal any pathology. However, examination of bronchial secretions may reveal oil droplets. The response to conservative management as a rule is poor, and resection of the involved lobe or segment usually follows.

Many of the so-called indeterminate lesions of the lung fall within the two previously mentioned groups. If within a period of three to four weeks, a positive diagnosis cannot be made, and the lesion shows no evidence of progressive clearing the thorax should be explored and resection of the offending segment, lobe or lung performed. Too often these so-called indeterminate lesions prove to be malignant.

MYCOTIC INFECTIONS

Actinomycosis — Primary actinomycosis of the lung is very rare. The lungs usually become involved by inhalation or aspiration of infected material from the upper air passages, and in early stages, may show a bronchitis or bronchopneumonic form. Later, formation occurs of abscesses which may coalesce, involving the pleura, and extending through the chest wall, resulting in fistulous tracts. Diagnosis depends upon recovery of fungus from sinus tracts. Treatment is by use of sulfonamides plus penicillin and wide drainage of the abscesses and sinuses. If confined to one lobe or lung, the lobe or lung may be resected. Blastomycosis of the lung may occur on rare occasions. Clinically, it cannot be differentiated from pneumonitis. The diagnosis may be made from recognition of the fungus in the sputum or from culture of the sputum. In the majority of instances, the diagnosis is made by pathological study of the excised lobe or lung.

Coccidioidomycosis — This disease has been found endemic in California and the Southwestern states. It has become an important public health problem since an increase in the disease had been noted in animals, particularly sheep, cattle, and dogs.

The disease occurs in two forms: The disseminated or granulomatous form of the disease which is often associated with pulmonary findings. Secondly, the disease may often assume a benign initial course, behaving like influenza, lasting three to four weeks. The patient may appear fully recovered, only to show later evidence of pulmonary breakdown with cavitation, which is first evidenced by hemoptysis and cough.

Roentgenographically, they may show giant thin-walled cysts in addition to granulomatous-like lesions in the pulmonary parenchyma.

If repeated episodes of hemoptysis occur, surgical extirpation of the cyst should be performed. There is a great analogy between this disease and tuberculosis, and it should be treated in a somewhat similar manner, although there is considerable controversy on this score.

PULMONARY CYSTS

True cystic disease of the lung probably is congenital and is not to be confused with "cystic bronchiectasis". Such intrapulmonary cysts have definite fibrous tissue walls and are lined with respiratory type epithelium. They may be single or multiple, in one lobe, or scattered. In general, they are asymptomatic as long as infection does not supervene. Sooner or later, however, infection develops and probably never completely clears again. The drainage is poor and fluid levels are frequent. Lipiodol almost never flows into the cysts. External drainage rarely may be indicated as a life saving measure, but may be entered upon with the full realization that resection will be necessary for cure. In most cases primary lobectomy is indicated.

CONCLUSIONS

Suppurative disease of the lung results from obstruction of the bronchus which prevents easy drainage and subsequent infections. This process may give rise to lung

abscesses or bronchiectasis. This process may result in chronic pneumonitis with multiple small abscesses. The etiologic factors here may be lipoid substances or fungus infections. These often produce so-called indeterminate lesions, which will not resolve under conservative management, necessitating resection of the lobe involved. Pulmonary cysts when infected, give rise to considerable difficulty and may necessitate resection. Our experience and those of others have amply demonstrated that these cases can be permanently benefited by pulmonary resection, with a negligible mortality and morbidity.

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THE EMERGENCE OF NEW VIRAL AND RICKETTSIAL DISEASES*

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Change is a phenomenon, characteristic of medicine in general, and the field of infectious diseases is no exception. The disappearance of the great epidemics and the general decline in occurrence of many important epidemic and endemic diseases are outstanding changes and have paralleled a general increase in living standards and improvement in environmental sanitation. Improved techniques of immunization and amazingly effective new methods of treatment have further combined to reduce the apparent importance of infectious diseases.

In spite of these changes, however, infectious diseases continue and will continue to merit our serious consideration. In the first place, the potential menace of the waning diseases not only persists but actually increases with the passage of time. As frequency of infection decreases, so does herd immunity, thus rendering the soil ever more fertile. And secondly, even as we learn to cope with known diseases, new entities continue to emerge.

It is to this latter phenomenon that I propose to direct your attention. The word "emergence" was deliberately selected as connoting "coming into view" and hence recognition. The adjective "new" has been employed in a rather liberal fashion. To gain proper perspective of the total phenomenon of change, we must go back in some cases to what is, at best, only relatively new. Furthermore, "new" has been used in various ways, to wit: new to our experience or geographical area; newly recognized (although possibly long in existence); or, finally and most literally, new to mankind. Lastly, it should be pointed out that the titular restriction of our discourse to viral and rickettsial diseases is really no restriction of importance since the phenomena which we are about to consider have been only rarely exemplified in modern times by members of other classes of microbial agents.

DISEASES NEW TO OUR EXPERIENCE

The discussion under this heading refers principally to well established disease entities, active in remote parts of the world but currently absent from our own immediate environment. Briefly, the existence of an infectious agent pathogenic for man in one part of the world constitutes a threat to the population of any other specific part of

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the world (including our own) which may not yet harbor that particular agent, but in which conditions favorable to the propagation, persistence, and dissemination of the agent exist. These latter necessary conditions, perhaps, need emphasis. Because of our relative freedom from lice and our high standards of water and sewerage sanitation such diseases as epidemic typhus and cholera do not seriously threaten us.

There are, however, a number of diseases which do threaten the United States. The recent outbreak of influenza in England and Europe and its subsequent spread to Canada and the eastern seaboard of the United States point out how vulnerable we are to the invasion of highly infectious agents which are transmitted by human contact.

An important but more easily countered threat is that posed by the arthropod-transmitted agents of disease. Because many parts of our country have been ravaged by it in the past and because of our proximity to a huge reservoir in South and Central America, the arthropod-transmitted agent that comes first to our minds is the virus of yellow fever. Actually, for lack of proper biologic environment, it seems unlikely that yellow fever virus could become entrenched here in an extra-human cycle, although stegomyia-transmitted outbreaks of limited nature might occur following the undetected entrance of an infected person or vector. A really extensive outbreak seems very unlikely, however, since changes in our environment have reduced urban mosquito breeding, screening of houses is widely practiced, and if need be, suitable control measures could be rapidly applied. A more serious, though less commonly recognized menace is to be found in the virus of Japanese B encephalitis. As Hammon in particular has pointed out,[1] this most serious of the arthropod-borne encephalitides closely resembles in its transmission and reservoir mechanisms the agents of St. Louis encephalitis and equine encephalomyelitis which are firmly established in the United States. Indeed, several mosquito species native to the West Coast are competent laboratory vectors.[2] Because of the extra-human and nondomestic character of its probable reservoir and transmission mechanisms, control would be difficult or impossible once the agent became established.

The foregoing examples, perhaps, suffice to illustrate the point. Despite the best efforts of public health authorities, "foreign" agents of disease may immigrate. As practitioners of medicine, we have the obligation to be alert for the signs of such immigration. Most importantly, we might prepare ourselves for the recognition of such signs by considering just which of the various exotic agents might find conditions essential to survival in our own local environments.

DISEASES NEWLY RECOGNIZED BUT PROBABLY NOT NEW TO MANKIND

One of the major lines of medical progress has been the progressive sorting out, one by one, of etiologic disease entities from the previously confusing welter of human illness. This process apparently has been completed, or nearly so, as far as diseases caused by bacteria and higher parasites are concerned. Such is far from the case, however, with respect to infections caused by viruses and rickettsiae.

In the early 1920's the syndrome of aseptic meningitis was described.[3] With the passage of time we have come to recognize within it a number of distinct etiologic entities, although even now we cannot put a name to every case. Major interest in this group now centers about the differential diagnosis of nonparalytic phases of poliomyelitis. Lymphocytic choriomeningitis (a relatively rare disease),[4] mumps meningoencephalitis (much more common as the only manifestation of infection than is perhaps generally realized),[5] and Coxsackie virus infections[6, 7] represent specific entities which can, with greater or lesser ease, be established on an etiologic basis.

Acute nonbacterial upper respiratory infections constitute, perhaps, the largest and most important group of as yet unseparated entities. Despite a long history of successful transmission experiments in man, and a history nearly as long of sporadically suc-

cessful attempts to propagate an agent outside of man (chimpanzees,[8] tissue culture,[9] chick embryos),[10-12] we cannot yet describe the etiology of the common cold. The very recent and highly convincing report by Ward and Proctor[13] of the propagation of a common cold virus in the chick embryo deserves mention. However, the work of the Army Commission on Respiratory Diseases[14] indicates the existence of at least two clinically distinguishable entities, and we must remain with the thought that even more agents may be capable of producing the syndrome of the common cold.

Like the common cold, clinical influenza is a syndrome and not an etiologic entity. Since 1933, influenzal viruses have been isolated both from sporadic cases and during epidemic outbreaks. Until recently, these isolated strains have belonged to one or the other of two antigenically distinct groups, even though evincing wide antigenic variation within the groups. Recently, a third viral type, antigenically distinct from the previously described A and B groups, has been isolated from cases of clinical influenza.[15, 16] Even now, however, the picture remains incomplete. A significant proportion of cases of clinical influenza still cannot be attributed to any known etiologic agent.

The rapid development of specific therapy for bacterial pneumonias in the 1930's was parallelled by an increasing recognition of the occurrence of nonbacterial and presumably viral disease of the lungs which was at first referred to as atypical pneumonia or virus pneumonia. Today this group is known to embrace at least three etiologically distinct entities and there is no certainty that still other agents may not be involved. The most commonly recognized entity, initially separated out on the basis of the cold agglutinin technique,[17] has been designated as primary atypical pneumonia. An agent, designated as the virus of primary atypical pneumonia, has been isolated by Eaton[18] and the results of seroneutralization tests with this virus have correlated fairly well with those obtained by the cold agglutinin techniques.[19] The agent is difficult to work with, however, and others have been slow to confirm the results. Hence, it is still premature to conclude that nonbacterial pneumonia associated with a rise in cold agglutinins represents a single entity. Less commonly, viral pneumonias are caused by one or another member of the ornithosis-psittacosis group of viruses or by *Coxiella burneti*, the agent of Q fever.

Other entities have emerged in relatively recent years from the syndromes of hepatitis, kerato-conjunctivitis, and acute stomatitis of childhood. Indistinguishable on a clinical basis, infectious hepatitis and homologous serum jaundice have been differentiated as distinct etiologic entities on epidemiologic grounds and on the basis of human transmission experiments.[20] The agent (or agents) of the former appears to be transmitted by the respiratory and enteric routes. The natural means of transmission of homologous serum jaundice, however, remains obscure. Similarly, kerato-conjunctivitis has been shown to comprise at least two entities. The recurrent form is a manifestation of infection with herpes virus,[21] whereas the epidemic form is apparently caused by a viral agent first isolated by Sanders in 1942.[22] Particularly important to pediatricians has been the separation, first made by Dodd, Buddingh and Johnston,[23] of the usual manifestation of primary infection with the virus of herpes simplex in childhood from other forms of acute stomatitis.

Somewhat analogous to the emergence of meningo-encephalitis as a common manifestation of mumps-virus infection has been the emergence of abortion, stillbirths, and various fetal abnormalities as manifestations of maternal infection with the agent of rubella.[24] While this important relation seems securely established, additional quantitative data are needed in order that in individual cases we can assess the risk in relation to the stage of gestation at which the infection takes place. The possible relations of maternal infections with still other viral agents to abnormal outcomes of pregnancy remain to be established. Conscientious reporting by physicians of these

other diseases as they occur in women of child bearing age is important to the solution of this problem.

Finally, great interest currently centers about the emergence of a group of agents designated as the Coxsackie viruses. Characterized essentially by their ability to infect suckling mice, producing in these animals in all cases an extensive myositis and in some cases central nervous system changes as well, this group now comprises seven or more antigenically distinguishable types.[25] Although the first member of this group was isolated only in 1948,[26] there is no reason to believe that these viruses are newly adapted to man. Against such a belief are first, the nearly complete restriction of isolations to materials of human origin, and second, the great ubiquity of the agents. The diversity of circumstances under which these agents have been isolated renders it difficult to assess their role as human pathogens. One syndrome, epidemic pleurodynia (or Bornholm's disease), apparently may be attributed without reservation to a member of this group.[27, 28] Coxsackie viruses have also been isolated from healthy persons and from persons with various minor febrile illnesses,[29] with "intestinal influenza" or "summer grippe",[30] with the Guillain-Barré syndrome,[31] and with illnesses simulating both paralytic[26] and nonparalytic[6, 7] poliomyelitis. This latter association seriously complicates the problem of making a clinical diagnosis of less typical forms of poliomyelitis. Indeed, because of the frequency with which Coxsackie and poliomyelitis infections coincide temporally and geographically and even in the same individuals, Dalldorf[25] has suggested that they may be associated in the production of disease.

DISEASES NEWLY AFFECTING MAN

The distinction between truly new diseases of man and those just newly recognized is not always easy and it must be admitted that there is room for dispute as to the propriety of assignment of some of the entities which will be considered in the following.

At least four new rickettsial diseases have emerged in modern times, two of which we can dispose of rather quickly. One, which made its appearance in Queensland in 1947 and is designated as North Queensland tick typhus, may in fact have only been newly recognized and, in any case, is geographically remote.[32] It is of interest in passing to note that the agent isolated is a member of the widely distributed antigenic group of which Rocky Mountain spotted fever is the prototype.[33] The other entity, Bullis fever, was a transient phenomenon which emerged during World War II in and about Camp Bullis, Texas, as a mild, rather nonspecific febrile illness, apparently tick-transmitted, and which has not since recurred.[34, 35] Strains of the agent which were isolated were lost before antigenic characterizations had been made.

The most important rickettsial disease to emerge, if indeed it can be properly so classified, is Q fever. The agent was isolated first in the mid-1930's from slaughter-house workers in Australia,[36] and soon thereafter from ticks collected in Montana.[37] During World War II outbreaks among troops revealed the presence of the agent in the Mediterranean area.[38] More recently, infections have been reported from Panama[39, 40] and from England.[41] While this geographical ubiquity constitutes a strong argument against Q fever as a truly new disease, the available evidence suggests that at least in the United States it is still in the process of adapting to man. Only since 1946 have naturally occurring infections been recognized in this country. While sporadic cases and outbreaks have occurred in various parts of the country (chiefly related to livestock and hide processing),[42-44] Q fever has begun to constitute a major problem on our West Coast. In the Los Angeles area the source of infection appears to be in the local dairy industry;[45] elsewhere, outbreaks and cases have been related to sheep and goats in addition to cattle.[46] While ticks are known to harbor the agent and presumably are important to the reservoir mechanism, transmission to man probably derives from infected animals. Infected tissues, milk, and

urine may contain the agent, the remarkable viability of which makes possible a variety of relatively indirect avenues of dissemination, including especially air-borne contaminated dust.[47]

The fourth new rickettsial disease, rickettsialpox, almost certainly made its debut in the borough of Queens in New York City in 1946.[48] Although the agent is antigenically a member of the Rocky Mountain spotted fever family, its vector is a mite, an ecto-parasite of the house mouse.[49, 50] Like *R. tsutsugamushi*, it characteristically produces a primary lesion resembling the eschar of scrub typhus. Fortunately, rickettsialpox is a mild disease with no reported mortality or complications.[51] So far, it has been reported chiefly in the New York City Metropolitan area but the existence of a definite focus of infection in Boston has recently been demonstrated,[52] and physicians practicing elsewhere may confidently expect to see it sooner or later.

The greatest number of newly isolated viral agents is to be found in the arthropod (and chiefly mosquito) transmitted group. The two new members of this group most important to us—the viruses of St. Louis encephalitis and Western equine encephalomyelitis—are essentially limited to North America and emerged one after the other in the early 1930's.[53, 54] Eastern equine encephalomyelitis emerged as a disease of man in the Boston outbreak of 1937,[55] but has not since been responsible for a large number of human infections. It has been found not only in the Eastern United States, but also in South Africa. The third equine virus—Venezuelan—was identified in the latter thirties,[56] produces a benign human disease,[57] and so far has not been identified outside of Trinidad and Venezuela. All four of these agents are presumed to have a basic reservoir in birds and bird mites, the virus passing to successive mite generations through the ova. From the reservoir the virus passes over to lower mammals and man via various mosquito species of indiscriminate feeding habits.

In the course of epidemiologic studies of the North American encephalitides and of yellow fever an additional array of agents (fifteen or more) have been isolated from mosquitoes. Some of these—such as California virus[58] and the virus of West Nile Fever[59]—are established pathogens of man. Others—such as the Semliki Forest[60] and Ilheus encephalitis[61] viruses—apparently can and do infect man as evidenced by serologic studies but have not been associated with overt disease as yet.

Of similarly uncertain significance is a group of agents given the unwieldly designation of Encephalomyocarditis viruses (EMC), a name which describes their dual tropisms in experimental infections. The first representatives of this group appeared in the course of attempts to adapt polio virus strains to rodents.[62, 63] Before their true identity was revealed, these strains (Columbia SK and MM) masqueraded as poliomyelitis viruses and caused no little confusion. Subsequently, antigenically similar, if not identical, agents have been associated by agent isolation or on serologic grounds with fatal myocarditis in a chimpanzee in Florida, violent encephalitis in man in Uganda (1 case), and with violent short-lived febrile illness in man in Manila (many cases).[64, 65] Further, virus has been isolated from mosquitoes, mongoose, and laboratory monkeys as well as from man in Uganda[66] and neutralizing antibodies have been found in many rodent sera collected in the southern United States.[67] Apparently we are confronted in this case with a widely spread agent or group of agents which, while potentially pathogenic for man, has not yet discovered a regularly effective pathway to him.

A final entity which should receive our serious attention has not yet been defined etiologically. In the winter of 1946-47 and again in 1948-49 the country of Iceland was visited by a disease which simulated poliomyelitis in some respects—chiefly in that paresis of various muscle groups was a characteristic feature of the more severe cases. It differed from polio, however, in many important epidemiologic and clinical respects. Clinically, the systemic effects were more profound and greatly prolonged;

relapses were frequent; physical signs and symptoms of meningeal irritation were lacking although spinal fluids revealed moderate pleocytosis and an elevated protein content; and sensory disturbances were common. Epidemiologically, the outbreaks occurred in midwinter; age-specific attack rates were lowest in children, highest in late adolescence, and generally high in adults. In spite of large numbers of cases, there was no mortality, although serious disability has persisted in the more severe cases. The disease was apparently highly contagious, spreading easily through schools and households to such an extent that overall attack rates were very high, approaching 10 per cent in some communities. Available evidence suggested spread by direct contact with an incubation period of about one week. To date, extensive efforts have failed to establish the identity of the etiologic agent.[68] When one considers the highly contagious nature of this disease, the characteristic age group and the total proportion of the population affected and then recalls that Iceland is a common way-station on our lines of air travel to and from Europe, it becomes evident that this psuedo-polio of Iceland is of great potential significance to us.

DISCUSSION

The foregoing account is intended, in part, to review some of the more recently described viral and rickettsial disease entities. Of much greater importance, this presentation is intended to draw attention to the phenomenon of emerging disease entities as a continuing process. These entities will be seen and described first by the alert practicing physician who is cognizant of the possibilities and has some understanding of the reservoirs of new diseases and the mechanisms by which they come into being.

The problem of imported exotic disease requires little comment. The basic principle is preparation for recognition based on knowledge as to which such disease agents might be expected to find their basic living requirements in our own immediate environment.

The emergence of etiologically defined entities from the mass of previously existing but ill-defined human illness is, in theory at least, a straightforward process involving agent isolation (a job for the microbiologist), correlation with a carefully described clinical syndrome, description of the principle reservoir and transmission mechanisms, and an evaluation of the major factors which influence disease occurrence. The role of the clinician in this process, however, should not be underestimated. Without his alertness and initiative in selecting cases of potential interest the services of the microbiologist may never be sought. On the epidemiologic front, the clinician again occupies a strategic position. Details as to the patients' living circumstances, general way of life, recent past activities, and possible direct or indirect association with other cases of similar illness can best be collected by someone in whom the patient instinctively has confidence and who can make his inquiries while the trail is still warm. A peculiar opportunity of the clinician is the collection of instances of single-point-in-time or "one and only" exposures upon which we base our knowledge of incubation periods and periods of case infectivity.

The emergence of truly new diseases entails all of the problems of recognition and description which we have just considered and the role of the clinician is the same. Additional interest attaches, however, to the basic reservoir of such diseases and to the mechanisms by which the agents find their way to man. The nature of the reservoir seems clear enough, although its extent may be hard to comprehend. Lower vertebrates and the vast invertebrate fauna harbor an unknown but undoubtedly vast number of viral and rickettsial parasites (often perhaps saprophytic as far as the reservoir host species is concerned). The total number of recognized veterinary entities is large but probably constitutes but a small fraction of the total vertebrate reservoir. The extent of the invertebrate reservoir is even less well defined but the isolation of a number of rickettsial species from ticks collected during Rocky Mountain

spotted fever surveys and the similar isolation of a larger number of neurotropic viral agents from mosquitoes collected during studies of the epidemiology of yellow fever and the various encephalitides are of obvious significance.

The possible mechanisms by which parasites from the reservoir come to affect man are not difficult to stipulate in a general way. The least profound possibility is that the agent has long had the capacity to infect man but that only recently, due to changes in environment or in human habits or customs, has man come into effective contact with the agent. The other possibility is that, by abrupt or gradual mutation, an agent not new to man's environment develops the capacity to infect man. While no certain natural example of this phenomenon can be cited, the problem of forcibly adapting an agent to an unnatural host species has been successfully resolved frequently in the laboratory. Serial passage techniques—usually following the use of overwhelming inocula in the first passage and carrying on from suspiciously ill animals or even in blind passage—probably find no counterpart in nature. It seems more likely that the natural process may follow the more subtle approach of alternate passage through man and the natural reservoir host, analogous, for example, to the laboratory adaptation of hog cholera virus to the rabbit.[69]

In summary, the emergence of new viral and rickettsial entities should be recognized as a continuing phenomenon for which no termination can be predicted. Even though we may conceivably complete the process of etiologic recognition of entities already established in man, the natural vertebrate and invertebrate reservoir of truly new agents appears to be nearly inexhaustible, especially as we consider the world as our basic epidemiologic unit. The importance of this phenomenon to public health authorities seems self-evident. It should be emphasized in closing, however, that recognition of these new entities and the collection of basic epidemiologic information constitute both special opportunities and responsibilities for the private practitioner, and are fundamental to the rapid development of effective methods for both treatment and control.

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HEALTH AND LONGEVITY*

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NEW ORLEANS

THE MEASURE OF PROGRESS

We physicians are, generally, so busy practicing medicine as to find little time to look deeper into the whole extensive problem of the effectiveness of our labors in attaining the objectives of our traditional creed "to save lives and to relieve suffering." Some of us, in our more philosophic moments, take time off to ponder this problem, but most do not. The extent to which the combination of saving life and relieving suffering can be measured is problematic. The difficulty is, of course, that while the former is an objective factor, the latter is subjective. We do not have, and it is doubtful whether we will in the foreseeable future have a means of measuring the suffering of people. But there is little doubt that those forces which effect a greater saving of life also tend both to prevent and to relieve suffering. In a general way, then, we can assume that a community of people which is subjected to life saving forces will also find itself living a life of less suffering. To a large extent, the actual means for the measuring of "saving life" and the development of techniques and instruments used in such measurement have fallen to the lot of nonmedical people, such as Graunt, Farr, Pearson, Pearl, and Dublin. We physicians make a great ado about saving life. But is saving life a criterion of progress, and if it be, to what extent have medical therapeutics and other factors contributed to this progress? Such a question may appear startling at first because we ordinarily take for granted, without questioning, that saving life is a progressive human practice. But when we begin to analyze, philosophically, the meaning of progress, we may find ourselves beset with a maze of moral and ethical questions which defy objective consideration.

Social criteria for the measure of progress may manifest themselves in as many different ways as there are different cultures and in as many variations as philosophies of life vary in each culture. Therefore, to some progress will be measured by the degree of happiness of a people, to others by the amount of people practicing their particular religion, to still others by the national production ability, and further, by the degree of democratization of government, and so on it goes from culture to culture, from cult to cult, and from class to class.

Is there, however, a criterion which is not limited by cultural or philosophic differences, which is as fundamentally valid in the East and in the West, in modern times and ancient times, in democratic countries and in nondemocratic countries, in historic times and in prehistoric times? Such a factor which is not limited to the various stages of human society but which has limited and will continue to limit human society insofar as it is composed of living entities will basically not be a social criterion but a biological criterion, even though sociological factors do fundamentally determine the stage of development of this biological criterion. Progress cannot be conceived of, in a positive sense, without presupposing the survival of living things. No cultural group, no part of a cultural group regardless of its own criterion of progress, could manifest progress unless it survived, except if its criterion of progress be self destruction. Progress in evolution is measured by the ability to survive and not by the ability of organisms to become specialized or to remain generalized,

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although the combination of both these forces is a basis of survival. The ability to survive in the nonhuman biological world depends on the ability of organisms to develop some degree of compatibility with the forces of the changing environment. The ability to survive in the human world will not only depend on the latter, but also on the ability of man himself to manipulate and accommodate the changing environment to himself.

Bare, unqualified survival implies the ability to remain living just long enough for the species to reproduce itself. Qualitative survival refers to the degree to which the average survival approximates the potential average biological limit of the life span of the species. This is referred to as *longevity*. The quality of human longevity depends upon man's ability to develop and to modify his environment and to build up the resistence of his organic functions, i.e., on his ability to develop and maintain health. Survival is, therefore, the bare criterion of man's ability to maintain his existence. But longevity is both the qualitative and quantitive essence of man's ability to progress as a socially producing animal. It is the basic biological criterion by which man's social progress may be measured throughout his whole historical and prehistorical existence. It is also a measure of his health. Although the essence of survival is biological, its superstructure is sociological under conditions of man's increasing ability to produce the instruments of survival. It is influenced by the stage of development of medical and hygienic science, and therefore by the life saving efforts of physicians. But man's ability to maintain his health which is reflected in his longevity depends primarily on the technological stage of his development, i.e., his ability to produce those things (among which food is the most important) which will influence the prolongation of his life.

Progress can be measured objectively by man's ability to survive, and the degree of progress can be measured by the degree to which his life has been prolonged toward the biological potential length of the species. The criterion for human progress, therefore, is the objective biological factor of longevity. But the fundamental force which man uses in furthering this progress is the objective *sociological* factor of technology.

MEDICINE: A NATURAL AND SOCIAL SCIENCE

Up to very recently, few physicians questioned the fact that medicine was a natural science. Physicians were mostly concerned with the care of individuals. Each individual was a biological entity. When the individual was sick, it was accepted that something had gone wrong with its biological dynamics, and to get the person well became an attempt to alter the biological dynamics back toward the "normal". But with the development of technology it became apparent that saving life was easier by applying preventive and control measures and in the process of doing so it also became apparent that social phenomena were powerful etiological or accessory factors in disease production, and that the application of such preventive and control measures required the manipulaton of the social forces as well as the natural. Therefore, medicine has more and more become recognized as a social science. Actually, it is both a natural and a social science. Medical science which deals with biological man as a social entity must perforce be both biological and social in essence.

POPULATION DEVELOPMENT AND TECHNOLOGY

In the period of man's history before he developed a technology capable of mobilizing the forces of nature for his own uses, his ability to survive was largely the result of the same natural forces as those determining the survival of other biological phenomena, even though he had become cleverer than brutes, had learned to outwit them, was better able to track them down and to protect himself against them and, to some extent, against the natural elements by collective, cooperative action. His early tools were, indeed, a guarantee against his extinction, since they made it easier for him to obtain food from any environment, but they did not increase his food supply beyond that which the environment naturally produced unaided. The population could grow no greater than the natural

limit of the food supply. The combination of a high reproduction potential and a greatly limited food supply resulted in a low longevity. When nature was bountiful the population increased, and when she was austere the population decreased. Therefore, whatever general laws of population governed other living things also were valid for man, since all populations depend for their existence primarily upon the availability of a food supply, and savage man, like other living things, depended upon the natural food supply. In the upper paleolithic period (upper stage of savagery), when man began to concentrate in village life, and therefore to develop methods of collective social action, the germ of the process of social population development was generated as distinct from the process of natural population development. But, for the most part he was still governed by the latter process.

Thus, man began, in the dim past, to lift himself out of the abysmal darkness of the natural struggle by creating tools and thereby initiated a process of accumulating a heritage of technical knowledge which culminated in what prehistorians call the Neolithic Revolution. The quantitative accumulation of techniques produced a qualitative change in technology. Man learned to control nature by cooperating with her. He became the archetype master of his food supply by discovering how to cultivate certain nutritious plants and to domesticate certain useful animals. The human economy changed from one of complete dependence on nature to produce, to one where man harnessed nature and directed her to produce at an increased tempo and at his will. From this time onward, man began to develop from one *social* epoch to the next as the quantitative accumulations of technology generated qualitative changes in production techniques and in the relations between men in the new processes of living together and producing socially. This in turn generated new patterns of social life, such as the Urban Revolution of the Bronze and Iron Ages, the Industrial Revolution, and at present, the great sociopolitical struggles that are going on for releasing the technological forces to all the world's people.

Beginning with the great Neolithic Revolution in the technology of production, every great change in such technology also brought with it profound changes in social relations and primarily in the functions of people related in the process of the new methods of producing for a livelihood. Each such change released new forces for increasing the population, for increasing the accumulation of greater technology in the treasury of our social heritage, and for increasing the health and longevity of human beings.

LONGEVITY AND SOCIAL PRODUCTION

It is not difficult to illustrate that it was not the practice of medicine primarily but the ability of society to produce, i.e., the stage of development of society's technology, that has been basically the mainspring for gradually increasing longevity of the various populations of the world. Table I illustrates how longevity has increased from ancient to modern times. No one can deny that medical practice in any semblance of effectiveness is more than one-hundred years old. It would be more cor-

TABLE 1
AVERAGE LENGTH OF LIFE FROM ANCIENT TO MODERN TIMES

Period	Early Iron and Bronze Age	About 2,000 Years Ago	Middle Ages	1687 1691	Before 1789	1838 1854	1900 1902	1946
Longevity	18	22	33	33.5	35.5	40.9	49.2	66.7
Area	Greece	Rome	England	Breslau	Massachusetts	England Wales	United States	United States
Author	Angel	Pearson	Russell	Halley	Wigglesworth	Farr	Glover	Greville

From *Length of Life*—Dublin-Lotka-Spiegelman-p. 42.

rect to reduce this duration by one-half. Yet, from an 18 year average longevity in the early Iron and Bronze Age, the longevity increased by more than 100 per cent up to one hundred years ago, and by more than 150 per cent up to fifty years ago. Nor can it be denied that whatever effective medical measures did exist through the centuries of this growth of longevity, such measures were not applied to the bulk of the population, but only to that small section which was able to afford either the services of physicians or had the means to carry out their advice. The only basic social factor which correlates with the historical trend of longevity is that of society's ability to produce and the degree with which the fruits of this production have filtered to the populace.

The great increase in production which began with the Industrial Revolution was followed by a greatly increased impetus in the development of longevity, and, as would be expected also, a rapid increase in the world's population. What is it about increasing production that increases health and longevity? First of all, and basically, there becomes available an increase of the food supply. Diet and nutrition are boosted to higher and higher levels. Secondly, shelter and clothing increase so that the human organism becomes more adequately protected against the natural elements. Thirdly, the protection and distribution of water, without which a population cannot survive, becomes increasingly more effective. Fourthly, the population is gradually lifted out of the morass of its own filth by the development and extension of sanitary excreta disposal facilities. Fifthly, by the processing, storage, and distribution of food, it becomes more and more divested of its death dealing adulteration. Sixthly, the environmental control of vectors made it possible to eliminate or greatly suppress many epidemic scourges. And seventhly, more and better immunizing agents are created through the technology of bacteriological and immunological sciences for the prevention of various epidemic diseases. But what are these basic achievements of production if not the fundamental instruments of public health practice during the past hundred years? These are the instruments which have reduced the classical manifestations of malnutrition from very common to relatively infrequent occurrences in the United States; which have reduced the deaths from diarrhea and enteritis in children under 2 years of age from 116 deaths per 100,000 population in 1900 to 4.7 in 1948, and in the whole population from 143 deaths per 100,000 to 6.0 in 1948; which have reduced dysentery death rates from 12 deaths per 100,000 to 0.7 in 1948, and typhoid fever from 32 to 0.1 in 1948; and further, which have reduced tuberculosis deaths from 195 per 100,000 in 1900 to 30 in 1948, scarlet fever deaths from 10 per 100,000 in 1900 to 0.0 in 1948, pertussis deaths from 12 in 1900 to 0.8 in 1948, measles from 13 per 100,000 in 1900 to 0.6 in 1948, diphtheria deaths from 40 per 100,000 to 0.4 in 1948.

THE MEANING AND INFLUENCE OF PUBLIC HEALTH

There is no doubt to the student that the great saving of life from the diseases mentioned above was primarily accomplished by the preventive practices which are based on the fundamental theories of public health. To say that activities of public health organizations were directly instrumental in effecting such reduction in mortalities is to misunderstand the nature of public health practice. Public health teaching is such that some of its theories are carried into practice by official public health organizations, but the greatest part becomes infiltrated into the cultural conscience of the community so that its practice becomes both the unconscious and the conscious ways of life of the people. A simple illustration is the average American's attitude toward water and excreta. The time was not too distant in the past when almost any source of water supply was satisfactory for domestic use and people did not hesitate freely and unconcernedly to drink and cleanse themselves with waters which obviously contained their own excreta and other filth. To the average American, today, a potable water supply and a

TABLE

LONGEVITY AND ECONOMIC DEVELOPMENT

	Expectation of Life at Birth[1]		National Income[2] Per Capita, 1939	Pre-World War II Available Calories Per Person Per Day[2]	Available Total Proteins Per Person Per Day[2]	Available Animal Proteins Per Person Per Day[2]	Total Protein That Is Animal	Infant Mortality Between 1936-40	Death Rates 1928-38[4]	Birth Rates 1928-38[4]	Illiterate Population—10 years and over[5]		Urban Population[5]	Population Types 3†
	Years	Period	Dollars		Grams	Grams	Percent				Percent			
India	26.7	1931	34	2021	56	9	16	166.0	23.7	34.9	91[10]	(1931)	13	3
Egypt	30.9	1927-37	85	2199	69	8	12	205	30.0	45.8	85[11]	(1937)	25	3
China	34.7[6]	1929-31	29	2201	68	5	7			45.0*				3
Mexico	37.2	1929-33	61	1909	59	20	34	125.5	26.1[9]	43.5	52	(1940)	35	3
Korea	37.5	1931-35		1904	70	15	21				69	(1930)	7	
Peru	39.0[7]	1933-35	72	2090	58	8	14	128.0	15.0[9]	32.0	57[12]	(1940)	35	3
Chile	41.2	1939-	174	2481	70	24	34	236	24.4	33.5	28	(1940)	52	
Brazil	43.0	1939-40	46	2552	73	26	36				57	(1940)	31	3
Colombia	46.3	1939-41	76	1934	62	29	47	158.0	15.5	32.1*	44	(1938)	29	3
Bulgaria	46.3	1925-28	109	2831	90	18	20	149	15.6	29.5	31	(1934)	20	2
Japan	48.3	1935-36	93	2268	67	12	18	112.2	17.7[9]	29.4	10	(1935)	47	2
Poland	49.8	1931-32	95	2702	72	19	26		14.4	26.8	23	(1931)	30	2
Hungary	49.8	1930-31	125	2815	89	24	27	147.3	15.3	22.0	6	(1941)	36	1
Greece	50.0	1928	136	2523	65	14	22	115.0	16.3	29.3	41	(1928)	35	2
U. S. S. R.	50.8[8]	1926-27	158	2815	71	17	24		17.8[9]	40.+				2
Portugal	50.7	1939-42		2461	74	23	31	144	17.0	29.0	49	(1940)	31	
Cz. Slovakia	53.6	1929-32	134	2761	72	25	35		13.5	18.4	4	(1930)	48	1
Italy	54.9	1930-32	140	2627	81	19	23	102.4	14.1	23.8	22	(1931)	44	1
Austria	56.5	1930-33	166	2933	79	36	46	99	13.6	14.3		(1935)	63	1
Finland	57.0	1931-40	184	2950	80	37	46	73	13.6	19.9	1[13]	(1930)	24	1
Ireland	57.1	1925-27	248	3184	92	41	45	66.3	14.2	19.5		(1946)	38	1
Belgium	57.9	1928-32	261	2885	77	32	42	76.7	13.3	16.5	6[14]	(1930)	61	1
France	58.8	1933-38	283	3012	87	38	44	65.8	15.7	16.2	4	(1936)	53	1
Germany	61.3	1932-34	520	2967	77	34	44	61.0	11.6	18.0	+	(1936)	66	1
Un. Kingdom	61.5	1937	468	3005	80	43	54	59.5	12.0	15.1	+	(1931)	79	1
Norway	62.4	1921-31	279	3129	83	41	49	38.8	10.4	15.6	0	(1935)	27	1
Switzerland	62.9	1931-41	445	3049	89	48	54	43.9	11.6	16.4	+	(1941)	33	1
Canada	64.6	1940-42	389	3109	87	47	54	60.1	9.9	20.6	4	(1931)	54	1
Denmark	64.7	1936-40	338	3249	76	44	58	55.6	11.0	18.0	0	(1935)	63	1
Un. States	65.0	1939-41	554	3249	88	50	57	48.7	11.1	17.4	4	(1930)	56	1
Australia	65.3	1932-34	403	3128	90	59	66	38.3	9.4	17.4	0	(1930)	64	1
Sweden	65.6	1936-40	436	3052	88	54	61	40.4	11.7	14.5	0	(1930)	42	1
Netherlands	66.5	1931-40	338	2958	78	37	47	36.2	8.8	20.8	0	(1935)	52	1
New Zealand	66.9	1934-38	396	3281	96	61	64	32.2	8.5	17.3	0	(1935)	60	1

1. Most of this data is from "Length of Life" by Dublin, Lotka, and Spiegelman.
2. World Food Survey—Food and Agriculture Organization of the United Nations, July, 1946.
3. Point Four and World Production—H. S. Piquet, Annals of the Am. Academy of Political and Social Science, Vol. 268, p. 148, 1950.

3†. Same reference as (3). Population Types are as follows:
Type 1—*Low growth potential.* Birth rates below 25/1000 pop. Low death rates. Small natural increase with prospect of relatively stationary population in the future.
Type 2—*Transitional growth.* Birth rates approximately between 25 and 35. Both birth and death rates generally falling. Rapid population growth. Exception is U. S. S. R. high birth rate.
Type 3—*High growth potential.* Birth rates around 35 or over. Death rates (but not birth rates) generally declining. Rapid growth in absence of civil disturbance, famine, and epidemic.

4. Epidemiological and Vital Statistics Reports, from World Health Organization.
5. United Nations, 1948, Statistical Year Book, and Demographic Yearbook. Dates in column on illiteracy apply to column on urbanization.
6. Rural China.
7. For the city of Lima.
8. White Russia and the Ukraine.
9. Data for 1932.
10. Excluding 17 million people in outlying area.
11. Excluding Nomadic population.
12. Not including 350,000 jungle population and 465,144 under-enumeration of population.
13. 15 years and over.
14. 7 years and over.

* Birth rate for China is an approximation; for Colombia and Japan, 1938-44.
\+ Less than 5% illiteracy.

safe and aesthetic disposal of his excreta is a basic and almost unconscious expectation from our way of life. Public health theory infiltrates into the laws of the land, into the educational and religious institutions, into the styles of clothing, the types of architecture, the facilities in housing and interior decoration, into the methods of food production, storage and distribution, into industrial plants and production, into concepts of decency, morals, and humaneness, into the play and recreation of people, into the literature, drama, press, radio and political and social propaganda, and generally into the sympathies and expectations of people. So thoroughly do these theories of public health gradually infiltrate the life of society that people completely forget and their progeny are never reminded that the roots of such practices were originally stimulated by educational efforts of the agents of public health and their propagandists. Yet without the ability to produce, all this public health theory and practice would be nonexistent or no more than nebulous dreams. Public health practice must work with the available materials produced by the community. The teaching and practice of hygiene cannot, in a general way, supersede the stage of productive development of a people.

One may ask: "If production is such a primary factor in health, is this a public health or an economic concern?" When one considers such basic forces of social life, i.e., forces which are the primary conditions for survival itself, distinction between the social, economic, and political fades away. Under no conditions can public health be separated from the latter categories if we accept the Winslow definition of public health. If public health be concerned with people obtaining an adequate amount of food, how could it separate itself from the social-economic-political dynamics involved in the production and distribution of food? Therefore, the level of living of a population is most emphatically a concern of public health; it is one of its basic principles, one of its fundamental teachings, one of its primary stimulations to action.

ORGANIZED COMMUNITY EFFORT IN SAVING LIFE

The problem of health and longevity, although predominantly related to the material development of a country is also influenced by the degree of organized community effort continuously expended in mustering the facilities available for increasing the health and longevity. This is most probably the factor which, to a large extent, determines which of a group of countries in a similar level of economic development, will have a greater longevity than the other countries of the group. Examination of table 2 shows, for example, that countries like New Zealand, and Australia, have greater longevity than the United States.

The effect of organized community effort in saving lives is illustrated by tables 3, 4, 5, 6, and 7. In these tables, an attempt is made to show how many lives have been saved in the year of 1948, by applying the 1900 death rates to the 1948 population and comparing these hypothetical deaths with the actual deaths of 1948. Table 3 shows the number of lives that have been saved from a group of diseases whose control has been effected mostly by the vigorous application of preventive and control techniques coupled with rising levels of living. In relation to the 12 diseases of this group, 663,380 lives were saved in the year of 1948. As has already been pointed out, much of the preventive and control techniques have become or are in the continual process of becoming habitual practices in the every day life of our people during their rest and leisure, their recreation, their education and their work, i.e., much of the educational and regulatory activities of public health have insinuated and are continually insinuating their impressions into the habitual living routine of the community. Thus, many of the life saving practices of the community may not be consciously associated with public health because the community may long since have forgotten the originating public health force. Who, for example, is continually conscious of the powerful impetus to sanitary living which was generated by the public health campaigns of Frank, Pettenkofer, Chadwick,

TABLE 3

DISEASES WHOSE CONTROL HAS BEEN MAINLY ASSOCIATED WITH ORGANIZED COMMUNITY EFFORTS IN THE FORM OF PUBLIC HEALTH PRACTICES AND BETTER LIVING STANDARDS. UNITED STATES

Diseases	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Typhoid and Paratyphoid	31.3	0.1	23,788	45,760	205	45,555
Scarlet Fever	9.6	0.0	7,296	14,035	68	13,967
Whooping Cough	12.2	0.8	9,272	17,836	1,146	16,690
Diphtheria	40.3	0.4	30,628	58,918	634	58,284
Tuberculosis	194.4	30.0	147,744	284,212	43,833	240,379
Dysentery	12.0	0.7	9,120	17,544	1,078	16,466
Malaria	6.2	0.1	4,712	9,064	170	8,894
Syphilis, all forms	12.0	8.0	9,120	17,544	11,616	5,928
Diarrhea and Enteritis	142.7	5.6	108,452	208,627	8,112	200,515
Puerperal Causes	13.4	2.8	10,184	19,590	4,122	15,468
Premature Birth	32.4	26.7	24,624	47,368	39,085	8,283
All Other Diseases of Early Infancy	37.9	15.4	28,804	55,409	22,458	32,951
Total	544.4	90.6	413,744	795,907	132,527	663,380

TABLE 4

DISEASES WHOSE CONTROL HAS BEEN ASSOCIATED WITH BETTER LIVING STANDARDS, MODERATELY EFFECTIVE PUBLIC HEALTH AND MEDICAL THERAPEUTIC EFFORTS, AND BETTER NURSING CARE—UNITED STATES

Diseases	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Measles	13.3	3.5	10,108	19,444	888	18,256
Pneumonia, all forms	202.2	35.2	153,672	295,616	51,425	244,191
Influenza	26.7	3.5	20,292	39,035	5,068	33,967
Nephritis, all forms	88.6	53.0	67,336	129,533	77,377	52,156
All Diseases of the nervous system, excluding Lesions of Vascular Origin	98.9	9.9	75,164	144,591	14,498	130,093
Accidents other than Motor Vehicles	72.3	45.0	54,796	105,410	65,742	39,668
Total	502.0	150.1	381,368	733,629	214,998	518,631

TABLE 5

DEATHS FROM DISEASES AND CONDITIONS FOR WHICH PRACTICALLY NO EFFECTIVE CONTROL, EITHER PREVENTIVE OR THERAPEUTIC, HAS BEEN DISCOVERED, 1900 TO 1948 UNITED STATES

Diseases	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Cancer	64.0	134.9	48,640	93,568	202,386	–108,818
Diseases of Heart	137.4	322.7	104,424	200,878	471,469	–270,591
Diabetes	11.0	26.4	8,360	16,082	38,638	– 22,556
Congenital Malformations	12.0	13.2	9,120	17,544	19,246	– 1,702
Suicide	10.2	11.2	7,752	14,912	16,354	– 1,442
Motor Vehicle Accidents	0	22.8	0	0	32,259	– 32,259
Intracranial Lesions of Vascular Origin	106.9	89.7	81,244	156,287	131,036	25,251
Cirrhosis of Liver	12.5	11.3	9,500	18,275	16,512	1,763
						–437,368
						27,014
Total	354.0	632.2	269,040	517,546	927,900	–410,354

TABLE 6
DEATHS FROM DISEASES WHOSE CONTROL HAS BEEN PREDOMINANTLY THERAPEUTIC IN NATURE, 1900-1948, UNITED STATES

Diseases or Conditions	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Appendicitis	8.8	2.9	6,688	12,865	4,171	8,694
Hernia and Intestinal Obstruction	11.9	6.9	9,044	17,397	10,099	7,298
All Diseases of the Digestive System not included in Tables 3, 5, and 6	54.7	17.1	41,572	79,971	24,425	55,546
Diseases of the Genito-Urinary System and Adnexa excluding Nephritis	17.4	9.0	13,224	25,438	13,172	12,266
Total	92.8	35.9	70,528	135,671	51,867	83,804

TABLE 7
CONDITIONS WHICH SHOW DECREASED MORTALITY RATES RESULTING FROM BETTER DIAGNOSTIC SKILLS, UNITED STATES

Diseases or Conditions	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Bronchitis	45.2	2.4	34,352	66,082	3,450	62,632
Senility	50.2	6.3	38,152	73,392	9,209	64,183
Ill-Defined Causes	60.7	12.4	46,132	88,743	18,082	70,661
Total	156.1	21.1	118,636	228,217	30,741	197,476

TABLE 8
SUMMARY TABLES 3, 4, 5, 6, and 7 WHICH REPRESENT APPROXIMATELY 95% OF ALL DEATHS OCCURRING IN 1900 AND 1948, UNITED STATES

	Death Rates 1900	Death Rates 1948	Deaths in 1900	Deaths in 1948 if 1900 Rates Had Persisted	Actual Deaths 1948	Lives Saved
Totals of Table 3	544.4	90.6	413,744	795,907	132,527	663,380
Totals of Table 4	502.0	150.1	381,368	733,629	214,998	518,631
Totals of Table 5	354.0	632.2	269,040	517,546	927,900	−410,354
Totals of Table 6	92.8	35.9	70,528	135,671	51,867	83,804
Totals of Table 7	156.1	21.1	118,639	228,217	30,741	197,476
Totals of Tables 3, 4, 5, 6 and 7	1,649.3	929.9	1,253,319	2,410,970	1,358,033	1,052,937
Complete Data, United States	1,719.1	988.5	1,306,516	2,513,324	1,444,337	1,068,987

Shattuck and many more such pioneers of a century or more ago. Yet their teachings have become indelibly ingrained in the hygienic laws, regulations, practices, and habits of our world. The dairy farmer and the manfacturer of dairy equipment may be conscious of the hygiene of milk production, but by the time the bottles of milk have reached the consumer, the details of the safety measures which became crystallized into a safe bottle of milk, have become almost completely lost. It is habitually expected that a bottle of milk is safe to drink. The water-works engineers, the manufacturers of flush toilets and wash bowls, and their engineers and the plumbers may be conscious of the problems of safe water and of cross-connections, but not the individual who habitually flushes the toilet, washes his hands, and quenches his thirst. What is generally not appreciated in the environmental control of vectors and vehicles of transmission of disease is that such practices not only protect against known diseases, but also against unknown diseases and new diseases which may find a harbor

in our ever changing environs, or which may appear as the result of changes in our socio-economic intercourses or by the development of variants in microscopic life. The population is almost never conscious of the saving of life that occurs as a result of control of the latter.

Table 4 represents a group of 6 conditions causing death, the control of which up to about 1940 was partly effected by preventive and control measures and partly by better nursing care and rising levels of living. All of these diseases had been gradually declining before the sulfa drugs and antibiotics had become so easily available. For pneumonia, influenza, nephritis, and accidents other than by motor vehicles, however, the decrease in death rates has been accelerated since these medicaments have come into common use. The latter drugs have, in particular, shown dramatic life saving qualities since they have become generally available for use in pneumonia. Although the death rates from pneumonia decreased by 50 per cent from 1900 to 1937 as a result of better living conditions and a better understanding of how to manage such cases, the decrease between 1937 and 1948 was about 65 per cent, undoubtedly as the result of new therapeutic measures. The decline of deaths from accidents other than from motor vehicles is the result of better therapeutic management of the accident cases and the decrease of hazards in industry and homes by various preventive measures including better housing. As compared to 1900, 518,631 lives were saved in this group of conditions in the year of 1948. From all evidence, the greatest amount of life saving from these conditions has resulted from nontherapeutic factors.

Table 5 concerns itself with a group of eight conditions for which practically no effective measures of control, either preventive or therapeutic, have been discovered up to the present time. For these conditions, there has actually been an increase of 410,354 deaths in 1948 over that which might have occurred, had the present death rates been the same as in 1900. All these diseases, except congenital malformations, appear to have one factor common to all of them, that is, that they seem to be associated with factors rooted in the cultural characteristics of our social development. Among these cultural characteristics are:

1. A prolongation of life, resulting mostly from the advancing levels of living and the prevention and control of communicable diseases with the resulting development of a population that is becoming top-heavy with aging people whose well-being we have been unable to secure.

2. A way of life in which toxic materials, resulting from industrialization, continue to increase in every aspect of our environment from the air, the water, the soil, the clothes and the shelter to the very food and therapeutic agents which we consume.

3. An increasing complexity of social life and the rising tempo of living with its drain on the physical, mental, and emotional processes for which we have been unable to to set up adequate controls.

4. The increasing development of transportation, the control over which is still sadly lacking.

5. The inadequate support for research relating to the physiology of aging and of environmental toxins and other agents.

These are a group of diseases that will require a much greater organization of community effort in order to effect life saving results. The organization of community effort will require, in this case, a much higher organized application of therapeutic and preventive measures than has, up to the present time, ever been accomplished in our country, and also larger expenditures for research.

Table 6 is concerned with a group of four conditions which have been amenable to life saving mostly by means of therapeutic measures. Even though one would at first be inclined to regard the life saving efforts in this group to have been accomplished by very little organized community efforts, such an evaluation is really not a true one. Actually there has been a good deal of organized community effort expended in distributing therapeutic facilities and services

to the people. This has been accomplished by:

1. Development of community controlled Hospitals
   a. Governmental (controlled 78.2 per cent of all hospital beds in 1944)
   b. Nonprofit association (controlled 11.3 per cent of all hospital beds in 1944)
2. Development of hospitalization service insurance plans (over 30 million enrollment in Blue Cross Plans in 1949)
3. Development of Physicians Services Insurance plans

In relation to this group, there has been a savings of 83,804 lives in the year of 1948 as compared to the deaths that might have occurred with the 1900 death rates.

Table 7 concerns itself with a group of 3 conditions which show greatly decreased mortality rates mostly due to better diagnoses and the transfer of the condition to another disease category. Except in the case of bronchitis the saving of life here is illusory. For "senility" and "ill-defined causes" it is quite probable that a good deal of these deaths find themselves today in the group of diseases of table 5 for which practically no effective control, either preventive or therapeutic, has been discovered.

EFFECTIVENESS OF PREVENTION AND THERAPY

The above analysis leads to conclusions which will startle most of our profession who are not in the habit of evaluating the life-saving effectiveness of our therapeutic labors. It leads directly and without equivocation to the conclusion that therapeutic medicine has always taken a not too important back seat position in the efforts of society to save life. The great expectation from theraupeutic medicine has, as yet, not materialized. The physicians' obligation to save life has been most successful only when they have united with other professions such as nurses, sanitarians, engineers, nutritionists, biologists, and educators, in organized community efforts of prevention, control and education. In the year of 1948, 663,380 lives were saved as the result of higher living levels and public health practices, while only 83,804 lives were saved as the result of measures which were predominantly therapeutic in nature. And further, 518,631 lives were saved by a combination of better living levels, public health practices, better nursing care, and therapeutic efforts, in which the latter played a relatively minor role. The above figures do not reveal another important aspect in which therapeutic medicine played almost no role in saving life, and that is the remarkable conquests against death from such horrifying and recurring ravages as yellow fever, cholera, Old World typhus, plague, and smallpox.

The above conclusion that an ounce of prevention is worth a pound of cure is, of course, not new. It is merely statistically proved. But it required many years of routine recording and tabulation of disease data so that this thesis could, beyond question or quibble, be quantitatively measured and proved. One of the great advocates of the above thesis was Lemuel Shattuck, the pioneer *par excellence* of the American Public Health Movement. More than a century ago he was struggling for the scientific approach to saving life and he spent a great deal of effort pleading and fighting for an efficient registry system which would supply, with the physician's help, the data to determine the laws of human life. It is a remarkable testimony of the power and importance of preventive medicine and hygiene that in the past hundred years, during which time therapeutic medicine has grown into an apparently formidable science, public health still remains the peerless weapon for saving life. What Shattuck wrote a century ago on this subject is still as fresh and valid and to the point as though it had been written today. Human productive power, as it is evaluated above, he likewise assessed as most fundamental for saving human life, for increasing longevity, for bringing greater happiness to a population, for progress in human society. It would be well to conclude this paper with a quotation, at length, from this peer of public health who

wrote the following gem* in 1845 to the Secretary of the Commonwealth of Massachusetts:

"It may be asked, what can the government do to arrest the hand of death? We do not suppose that an act of the legislature can compel a child to live, or an adult to keep his energies in a healthy state of action. But it is as certain that human life may be prolonged by knowledge and care, as it is that an ox will fatten, a silk-worm spin its thread, or a plant thrive better where knowledge and care are bestowed, than where they are not. Let the facts which the Registry System proposes to collect concerning births, deaths and marriages, and the circumstances which attend them, be collected, digested, arranged, published and diffused annually, and their effects on the living energies of the people would be incalculable. They would be an annual lesson on the laws of human life in their operation among ourselves—a kind of *Practical Physiology* taught in all our towns and at our firesides—and hence, far more instructive and impressive than any derived from books. They would teach our people how to understand human life and how to improve, prolong and make it happy . . . It behooves the state to develop and preserve its productive power—the lives and health of the people—as much as possible, and search out those causes which tend to blast it in its bud, or wither it in its ripeness.

"These are not the speculations of a visionary theorist, but the legitimate deductions from serious, sober facts. We are not a theorist—an experimentalist. We have no sympathy with the opinions of some modern reformers, who seem to be governed by theories founded on uncertain, partial data, or vague conjecture. We are a statist—a dealer in facts. We wish to ascertain the laws of human life, developed by the natural constitution of our bodies, as they actually exist under the influences that surround them, and to learn how far they may be favorably modified and improved. This can only be done by an accurate knowledge of the facts that are daily occurring among us. These matters are important to the physician to aid him in curing the sick, but far more important to the people to aid them in learning how to live without *being sick;* and they deserve the serious consideration of all persons in this commonwealth.

"To show that these matters are practicable, we cite the example of other governments. In most European states, facts of this kind are registered and collected in a careful, systematic manner, not for the purpose of aiding any police regulations, as some have erroneously supposed, but for the physical benefit of the people. And, whatever we Americans may say to the contrary, the average longevity in many places where these measures have been in operation, appears greater than with us.

"Geneva was one of the earliest cities to establish a system of registration of births, marriages and deaths. The registers were begun as early as 1549, and have since been continued with great care. They are viewed as preappointed evidences of civil rights. The registration includes the name of the disease which caused the death, entered by a district physician, who is charged by the state with the inspection of every person who dies within his district. A second table is made up from certificates setting forth the nature of the disease, with a specification of the symptoms, and observations required to be made by the private physician who may have had the care of the diseased. These registers have been frequently examined. I have before me the results of an examination made by Edward Mallet, a very able work, published in the 'Annales D'Hygiene.' From this work it appears that human life has wonderfully improved since these registers were kept. The number of years which it was probable that every individual born would live, appears in the different periods as follows:

Period	Years	Months	Days	Rate of Increase
1550 to 1600	8	7	26	100
1600 to 1700	13	3	16	153
1701 to 1750	27	9	13	321
1751 to 1800	31	3	5	361
1801 to 1813	40	8	10	470
1814 to 1833	45	0	29	521

Showing that the mean duration of life has increased more than five times during these periods!

"The progression of the population and increased duration of life have been attended by a progression in happiness. As prosperity advanced marriages became fewer and later. The proportion of births was reduced, but a greater number of the infants born were preserved, and the proportion of the population in manhood became greater. In the early ages, the excessive mortality was accompanied by an excessive fecundity. In the last ten years of the 17th century a marriage still produced more than five children; the probable duration of life attained was not 20 years. Towards the end of the 18th century, there was scarcely three children to a marriage, and the probabilities exceeded 32 years. At the present time, a marriage only produces 2¾ children, and the probability of life is 45 years.

"Geneva has arrived at a high state of civilization. The real productive power of the population has increased in a much greater proportion than the increase in its actual number. The absolute number of the population has only doubled dur-

*Fourth Annual Report to the Legislature, relating to the Registry and Returns of Births, Marriages, and Deaths in Massachusetts, for the year ending April 30, 1845, by John G. Palfrey, Secretary of the Commonwealth. Letter to the Secretary from Lemuel Shattuck, Esq.
The Journal of the Medical Sciences, No. XXII, p. 412, April 1846.

ing three centuries; but the value of the population—the productive power, has more than doubled upon the mere numerical increase. In other words, a population of 27,000 in which the probability of life is 40 years for each individual, is more than twice as strong for the purposes of production, as a population of 27,000 in which the probability or value of life was only 20 years for each individual.

"This wonderful improvement is attributed, among other things, by E. Mallet, to the information obtained, rendering the science of public health better known and understood; to larger, better and cleaner dwellings; to more abundant and more healthy food; and to a better regulated public and private life."

NEW ORLEANS
Medical and Surgical Journal

Established 1844

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THE CONFLICT BETWEEN LOUISIANA PHYSICIANS SERVICE, INC. AND LOUISIANA HOSPITAL SERVICE, INC.

In another part of this issue (see Organization Section) there is an account of the recent aspects of the conflict between Louisiana Physicians Service, Inc. (Blue Shield) and Louisiana Hospital Service, Inc. (Blue Cross). It was hoped four years ago that these two organizations could work together in harmony for their mutual interest and in the best interests of better medical service and in the fight against State Medicine. It is regrettable that the situation developed in such a way that the House of Delegates advised Louisiana Physicians Service to sever connections. This was done after the Board of upstate Blue Cross offered the Executive Committee of the State Society several plans of unified operation and none of these plans were considered by the special committee to be in the best interests of the Louisiana Physicians Service or the State Medical Society. The action of the House of Delegates approved the report of the committee and the relationship was dissolved.

It is lamentable, in the weeks following the severing of joint operations that events drifted in such a direction that it was necessary for Louisiana Physicians Service to take legal steps to protect its rights and the interests of its subscribers. This "melancholy business," to use Winston Churchill's famous phrase, was initiated by the officers of the Louisiana Physicians Service only after making the most strenuous efforts as a Board and on a personal basis to appeal to Blue Cross to correct the false impresisons and to avoid a situation which would have put Louisiana Physicians Service in an unfair position. This is what would have happened if all of the Louisiana Physicians policy holders had been blanketed into Blue Cross while they were misinformed as to the true status of the respective companies.

As is shown in the account referred to above, Louisiana Physicians Service won a case in the Civil District Court under Judge Spaht in Baton Rouge and a related case in the office of the Insurance Commissioner, the Honorable Wade O. Martin, Jr. These separate decisions, one enjoining the practices of Louisiana Hospital Service, and the other suspending its license for sixty days, are a solid vindication of the position taken by the Board of Louisiana Physicians Service and are a testimony to the soundness of judgement of the officers. These two decisions put the Louisiana Physicians Service in a position where it can solicit its old subscribers, enroll new subscribers, and carry on an operation which at one and the same time is of such distinct

service to the public and to the medical profession. The company will now sell surgical, medical, and hospital insurance, and is in a position where it can ultimately sell it over the entire State and not be bound by Blue Cross regulations, which have previously kept it out of the New Orleans area.

It is of considerable moment for the doctors of this State to realize how necessary the success of Louisiana Physicians Service, Inc. is to organized medicine. With the current practice of Blue Cross organizations the medical profession cannot have more than one third of the voting strength in a matter of policy. Actual operation, therefore, has passed out of the hands of the medical profession and is largely directed by hospital administrators and their agents. Prepaid medical insurance is one of the chief weapons in the fight against socialized medicine. It must succeed. To do so it must have the doctors' help. If an organization over which they have no control becomes dominant in the practice of medicine, they, the doctors, will pass under its tyranny. For instance, it is conceivable that the majority of surgical fees will be set by prepaid insurance organizations in the generations ahead of us. If we do not control the organization that sets the fees it will be our fault. Again it is obvious that the trends in the practice of medicine are such that the hospitals are becoming of greater and greater importance. It is also easy to see that Blue Cross organizations, being largely under the direction of hospital executives, tend to follow the lead of hospital management. Hospital management in the recent past has shown a regrettable tendency to want to engage in the practice of medicine itself. For these two reasons, it is crystal clear that the doctors must promote, control, and ensure the success of their own prepaid medical insurance plans; otherwise the control of the practice of medicine will not be theirs. The prospects for Louisiana Physicians Service are brighter now than they have been since its organization four years ago. The founders, the officers, and the supporters have done medicine in Louisiana a great service. Each member of organized medicine should support them.

ORGANIZATION SECTION

The Executive Committee dedicates this section to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

CHRONICLE OF THE CONFLICT BETWEEN LOUISIANA PHYSICIANS SERVICE AND LOUISIANA HOSPITAL SERVICE

The House of Delegates of the Louisiana State Medical Society, which had its meeting on May 7, 1951, approved a special committee report requesting Louisiana Physicians Service (the Blue Shield Plan) to cancel its operating agreement for billing, selling, and collecting with Louisiana Hospital Service (the upstate Blue Cross Plan). The committee report also recommended that L.P.S. (Blue Shield) provide a prepaid hospital program in connection with its established surgical-medical program. The committee had been appointed at the request of the Executive Committee of the Louisiana State Medical Society by Dr. George W. Wright, who served as an ex-officio member with Dr. P. H. Jones, New Orleans, as Chairman; Dr. Roy B. Harrison, New Orleans; Dr. W. S. Kerlin, Shreveport; Dr. M. B. Pearce, Alexandria; and Dr. F. B. Rizzo, Monroe, as members.

Based on the recommendations of the committee, the approval of the House of Delegates, and the subsequent approval of the Executive Committee of the Louisiana State Medical Society, the Board of Directors of the Louisiana Physicians Service (Blue Shield) dissolved its working agree-

ment with the upstate Blue Cross Plan. The agreement had provided that Blue Cross do the selling, billing, and collecting for L.P.S. (Blue Shield).

Subsequent to the termination of the working agreement, the upstate Blue Cross Plan began issuing certificates, letters, and other materials and began soliciting Blue Shield subscribers, to sell them surgical insurance. The letters, which tended to confuse the public, contained certain misleading information and attempted to induce the subscribers of Blue Shield to believe that their Blue Shield certificates had been cancelled, and that Blue Cross was substituting their rider to protect the subscribers. This was untrue as Blue Shield had not cancelled its certificates. It was Blue Cross's objective, through the use of these misleading letters, printed cards, mimeographed forms, and through their misleading and deceptive statements to induce policyholders of Blue Shield to cancel, terminate, or surrender their policies in our company and to take the Blue Cross coverage.

Because of these unethical practices, the doctors had to obtain a temporary restraining order and subsequently obtain a preliminary injunction against Blue Cross in the upstate area from blanketing in Blue Shield subscribers. In the Reasons for Judgment issued by Judge Spaht, the document reveals that the action of the Louisiana Hospital Service (the upstate Blue Cross Plan) in using certain materials and literature was

"* * * unfair and deceptive and for the express purpose of inducing subscribers in plaintiff corporation (L.P.S.) to cancel their policies and substitute defendant's policies (L.H.S.), all in direct contravention of the Louisiana Insurance Unfair Trade Practices Act.

"The court knows defendant's actions tended to confuse the public.

"The effect of these letters was to lead the subscriber to believe that in order to have continuous coverage he should cancel his existing policy with the plaintiff corporation (L.P.S.) and to take the policy of the defendant corporation (L.H.S.).

"Another unfair result of these documents is to lead the recipient of one to believe that his policy is canceled immediately by termination of the relationship between the two corporations. Defendant well knew that plaintiff's policies were on a month to month basis and continued on indefinitely."

The above quotations were taken directly from the Reasons for Judgment issued by the Honorable Judge Spaht of the Nineteenth Judicial Court of the Parish of East Baton Rouge, on June 12, 1951.

Because of these practices indulged in by the upstate Blue Cross Plan, the Louisiana Hospital Service was ordered to show cause, before the Insurance Commissioner of the State of Louisiana, why the Certificate of Authority of Louisiana Hospital Service should not be suspended or revoked for violations of the Unfair Trade Practices Act of the State of Louisiana.

On June 20th, in the Capitol Building in Baton Rouge, there was a hearing before the Honorable Wade O. Martin, Jr., Secretary of State and ex-officio Insurance Commissioner of the State of Louisiana. At this hearing documentary evidence in the form of letters, circulars, mimeographed postcards, and other written material, which had been used by Louisiana Hospital Service, was presented to the Commissioner. On July 27, 1951, the Insurance Commissioner rendered an opinion which said, in part, "that this attempt to induce subscribers of the Blue Shield to place their coverage in Blue Cross without clearly presenting this fact and by the payment of the same premium in the usual customary manner constituted an unfair trade practice contrary to the provisions of the Louisiana Insurance Laws."

In his final statement the Commissioner stated, "under the authority vested in him by law, does hereby suspend the certificate of authority of the Louisiana Hospital Service, Inc. for a period of sixty (60) days from the date of this Order." Following this there was a paragraph of definition as to the meaning of the suspension order.

It is clear, therefore, that the Louisiana Physicians Service won a case before Judge Spaht in the Civil District Court at Baton Rouge, and a case before the Honorable Wade O. Martin, Jr., Secretary of State and ex-officio Insurance Commissioner, State of Louisiana. These two cases covered different aspects of the conflict, and both were necessary to secure legally what are obviously ethical and moral rights.

The practices indulged in by the upstate Blue Cross Plan have been directed to the attention of the national Blue Shield and Blue Cross Commissions, and an investigation has been requested of the Commissions and specific action against a plan which would seek to damage the reputation of Blue Shield and Blue Cross.

The doctors of this state in the past few years have spent much time, money, and effort to increase public relations by the system of prepaid health care. We have spent much time fighting the socialization of medicine, compulsory health insurance, and the like. We are now confronted with a situation here in Louisiana which is more drastic than many of the doctors can realize.

Control of the system of Medical Economics now hinges on the fight we shall make to preserve the status of Blue Shield in this state. It is most unfortunate that the use of the Blue Cross emblem has fallen prey to an organization that would indulge in such tactics as referred to previously. The control of the entire system of medical economics is in jeopardy. The reasoning behind this statement is simple because if the control of prepaid health care in the upstate area of Louisiana is taken away from the doctors by the destruction of their Blue Shield organization; and should the subscribers be induced and deceived into canceling their Blue Shield coverage, and, if the persons directing Blue Cross in the upstate area are permitted to maintain such dictatorial powers, then doctors of the State will have little voice in their fees, their practice or the affairs of hospitals. The fact is that at this particular time the groups are small and Blue Cross' influence in the upstate area is proportionately smaller than in any state of the union, but this does not remove the obvious danger.

Your attention is directed to what could possibly happen if an organization succeeded in gaining control of medical economics.

Even though there are two sides to every dispute surely many doctors responsible for the operation of Louisiana Physicians Service and the Louisiana State Medical Society would not have made such a drastic decision to sever their relations with Blue Cross in the upstate area had not such a decision been necessary and after much thought and consideration.

Surely a judge would not have handed down such a decision had the facts not been clear. It is quite obvious from the actions of Blue Cross in the upstate area that their one objective is to wrest control of prepaid health care fro mthe doctors of this state. Through their *coup d'etat* tactics, they have partially accomplished their objective.

To undo the damage that has been done, it is necessary that every doctor in the state of Louisiana lend his support to Blue Shield and inform the public of our position in this fight with Blue Cross. The doctors of this state *must* stick together and fight as a unit to preserve the control of medical economics—for, divided they fall.

When a patient or subscriber asks about Blue Shield, be sure your comments are unhesitatingly in favor of Blue Shield and that you recommend its program. The program which Blue Shield is now offering is identical to that which Blue Cross offers for hospital care. We are of the opinion our new combined hospital-surgical coverage is better than what Blue Cross has offered. This, of course, is our opinion and we reserve the right to express our belief.

We sincerely hope when your patients inquire, you will tell them to "Change to Blue Shield."

A. M. A. DUES

The Executive Committee directed me, as your Secretary, to secure further information regarding 1950 and 1951 AMA dues

while at the Atlantic City meeting in June, and I wish to report as follows:

If you paid your 1950 dues before December 31, 1950, or within one month following date of written notice of your delinquency, you are in good standing and will receive the JOURNAL and enjoy all privileges of membership, and you will have until December, 1951, to pay your 1951 dues. However, if you did not pay your 1950 AMA dues prior to December 31, 1950 or during the 30 days grace following notification by AMA of your delinquency, both the 1950 and 1951 dues become payable, and unless these dues are paid your name will be automatically removed from their roster.

You must remember that any physician in good standing with our State Society in 1949 was automatically a member of AMA. If you did not pay your 1950 dues, you are a delinquent for these dues. There were no membership dues prior to the year 1950; there were only fellowship dues up to that time.

If you wish to pay your 1951 dues of $25.00 and the 1950 delinquent dues of $25.00 owed the AMA for your membership and JOURNAL which you enjoyed during 1950, you can be reinstated to membership and continue to be a member as long as you pay your succeeding annual dues. Your 1951 AMA dues will not be accepted until the 1950 dues have been paid.

If, however, you desire *not* to be a member for, say, 1951, or 1952, or 1953, and wish to again become a member in 1954, you can do so by paying your 1954 dues plus the 1950 delinquent dues you still owe for your membership and JOURNAL and other benefits you enjoyed during that year. Of course, under these conditions you would not be a member for the year 1951, or 1952, or 1953, and consequently would not owe any dues for these respective years.

At the Atlantic City meeting in June the House of Delegates disapproved several state society resolutions doing away with fellowship dues, and fellowship dues are still $5.00 a year, which dues are in addition to the regular membership dues of $25.00. Membership dues, of course, include the AMA JOURNAL priced at $15.00 per year to nonmembers. You can readily see that you only pay in reality, $10.00 for the many services enjoyed by being a member of your national organization.

If in addition to enjoying a membership you also become a fellow, you have the privilege of selecting any one of the specialty publications issued by the AMA, instead of the AMA JOURNAL.

AMA dues for any member over seventy years of age will be deleted.

1952 ANNUAL MEETING

Dr. Ralph H. Riggs of Shreveport has been appointed Chairman of the Committee on Arrangements for the 1952 Meeting to be held in Shreveport, April 28-30. Serving with him are the following committees:

Advisory—Drs. Paul D. Abramson, C. B. Erickson, J. M. Gorton, L. W. Gorton, M. D. Hargrove, A. A. Herold, Sr., and W. R. Mathews.

Badges—Dr. W. M. Browning, Chairman; Drs. Ross Tilbury, J. G. Wafer and B. H. Young.

Banquet—Dr. Chas. Anderson, Chairman; Drs. G. A. Creel, R. B. Langford and Wm. A. McBride.

Decorations—Dr. R. D. Crow, Chairman; Drs. Jas. F. Gavin, Irwin Rice and B. P. Smith.

Entertainment—Dr. Chas. Gowen, Chairman; Drs. Alice Holoubek, Harry Trifon and George Wolfe.

Finance—Dr. J. P. Sanders, Chairman; Drs. S. W. Boyce, Frank Bryant and Hugh Ilgenfritz.

Golf—Dr. W. G. Jones, Chairman; Drs. Gene Caldwell, Wm. J. Hill and E. G. St. Martin.

Hospitals—Dr. Wm. E. Reid, Chairman; Drs. Peachy Gilmer, A. A. Herold, Sr., T. P. Floyd, J. R. Stamper and Clint Willis.

Hotels and Meeting Rooms—Dr. Clarence H. Webb, Chairman; Drs. Sam Gill, Arthur Herold, Jr., and H. DeN. Tucker.

Lanterns—Dr. James Eddy, Chairman; Drs. W. H. Carroll, W. M. Hart and W. M. Matthews.

Luncheons—Dr. J. E. Knighton, Jr., Chairman; Drs. R. T. Lucas, B. M. Kalstone and J. D. Youman, Jr.

Publicity—Dr. Keith Mason, Chairman; Drs. Whitney Boggs, C. E. Boyd and Orville Thomas.

Registration—Dr. L. L. Davidge, Chairman; Drs. Wm. M. Hall, W. C. Holman and G. J. Woolhandler.

Scientific Exhibit—Dr. Charles Black, Chairman; Drs. E. E. Dilworth, John Hendrick, E. J. MacPherson and W. W. McCook, Jr.

Signs—Dr. H. B. Levy, Chairman; Drs. Wm. L. Bain, Carson Reed and H. H. Vaughan, Jr.

Technical Exhibit—Dr. Don Overdyke, Chair-

man; Drs. B. C. Garret, Jr., E. L. Wenk and R. K. Womack.

Transportation—Dr. W. B. Worley, Chairman; Drs. Penn Crain, Wm. F. Drummond, J. V. Hendrick, T. M. Oxford and Tom Smith.

Woman's Auxiliary—Dr. R. B. DeLee, Chairman; Drs. N. J. Bender, T. A. Glass, K. B. Jones and Raymond Mays.

The doctors of Shreveport have already started planning for this meeting, the headquarters of which will be at the Washington-Youree Hotel. For specific information concerning the meeting, contact the committees listed above.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Third Thursday of every month	Bastrop
Natchitoches	Second Tuesday of every month	
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

SOCIALIZED MEDICINE

Socialized medicine evidently is far from being a dead fish on the beach!

William Green, president of the American Federation of Labor, has just issued a strong appeal to "all our 8,000,000 members and their families" to contribute to the Committee for the Nation's Health.

Now that Oscar Ewing's prodigious propaganda machine in behalf of socialized medicine has been stalled by Congress, at least temporarily, Mr. Green has taken up the cudgel and, as honorary vice-chairman of the Committee for the Nation's Health, is going to run full-steam ahead.

In a full-page appeal in the A.F. of L. publication, "The American Federalist," Mr. Green addressed this message to all members. The letter follows in part:

"At the Houston convention last September, we of the American Federation of Labor pledged ourselves to a continued fight of national health insurance, disability insurance and federal aid to train more doctors and strengthen local public health departments.

"Determined to block these necessary and desirable measures, the American Medical Association has been spending millions of dollars in the last two years. The medical lobby is a spearhead of the reactionary forces.

"We of the American Federation of Labor are determined to preserve and extend our hard-won gains in social security, health and welfare. In this important activity our invaluable ally is the Committee for the Nation's Health, a group of distinguished physicians and laymen. The Committee for the Nation's Health is working hard to aid the American Federation of Labor and Labor's League for Political Education to build the solid educational base for a mandate to achieve labor's health goals.

"Every contribution to the Committee for the Nation's Health will help defeat the medical lobby's lies at the grass roots. Your contribution—large or small—to this Committee will pay off in better health and welfare legislation for all our 8,000,000 members and their families."

This type of appeal to the labor public shows that our campaign must be waged continuously.

NEWS ITEM

Effective August 10th, 1951, the office of the American Board of Obstetrics and Gynecology will be located in Cleveland, Ohio. Please address all communications to:

Robert L. Faulkner, M. D.
Secretary-Treasurer
American Board of Ob. & Gyn.
2105 Adelbert Road
Cleveland 6, Ohio

TRI-STATE MEDICAL ASSEMBLY MEETS SEPTEMBER 26 AND 27

The Tri-State Medical Assembly will be held in Marshall, Texas, on September 26 and 27, 1951. An extensive and interesting program has been arranged. Guest speakers will be the following:

University of Arkansas:
Dr. Allan G. Cazort, Clinical Professor of Medicine
Subjects: 1. Therapy of Dyspnea in Asthma
2. Drug Sensitivity

University of Texas:
Dr. William Levin, Associate Professor of Medicine
Subjects: 1. Diagnosis and Treatment of Anemias
2. Hypersplenic Disorders

Baylor University:
Dr. Fred M. Taylor, Assistant Professor of Pediatrics
Subjects: Undiagnosed Fevers
Southwestern Medical College of the University of Texas:
Dr. W. G. Reddick, Professor Clinical Medicine
Subject: The Management fo Diabetic Coma
Dr. Elliott M. Mendenhall
Subject: Recent Advances in Treatment of Pulmonary Tuberculosis
Dr. Everett C. Fox, Clinical Professor of Dermatology and Syphilology
Subject: Treatment of Common Skin Diseases
Dr. F. A. Duncan Alexander, Chief, Anesthiology, Veteran's Hospital, McKinney, Texas
Subject: The Management of Pain
Dr. Harry M. Spence, Clinical Professor and Chairman Dept. of Urology
Subject: Hematuria

There will be a banquet on the night of September 26, 1951 at which the University of Texas Medical Branch will confer an award on Dr. George Perry Rains, an early graduate of the University. The speaker of the evening will be Mr. E. J. Forio, Vice President of the Coca-Cola Company, Atlanta, Georgia, who will speak on "Public Relations." The doctors wives are invited to the banquet. There will be entertainment for the ladies during both days of the meeting.

For further information, write James H. Harris, M. D., Secretary-Treasurer, Tri-State Medical Assembly, Marshall, Texas.

HEALTH AUTHORITY SEES AMEBIASIS SPREADING

Despite good environmental sanitation programs in large cities, amebiasis, a parasitic infection often transmitted by foodhandlers including workers and housewives, may be spreading, a health authority warned.

Dr. Howard B. Shookhoff, of the Bureaus of Laboratories and Preventable Diseases of the New York City Health Department, said authorities are becoming more and more aware of the "great prevalance" of this disease throughout the country. It has been estimated that 15,000,000 are infected. The doctor reported in the Bulletin of the New York Academy of Medicine.

Amebiasis ranks second today only to malaria among the world's most widespread protozoan infections, he pointed out. "Although malaria is slowly being squeezed out of existence by new programs," he declared, "amebiasis on the other hand may actually be spreading."

REVISED CATALOG OF MEDICAL MOTION PICTURES

A revised catalog of motion pictures is now available through the Committee on Medical Motion Pictures. Copies will be sent to the secretary of each county and state medical society. This catalog lists sixty-two 16 mm. films, most of which are at the professional level. Fourteen of these films are suitable for showing to lay groups. Eight new films have been added. Copies are available upon request from:

Committee on Medical Motion Pictures
American Medical Association
535 North Dearborn Street
Chicago, 10, Illinois

BOOK REVIEWS

The External Secretion of the Pancreas: By J. Earl Thomas, M. D. Springfield, Charles C. Thomas, 1950, Pp. 160, illus. Price $3.50.

This is a monograph in the *American Lectures in Physiology* series. It is written from the point of view that "modern physicians are about as much interested in the sciences that are basic to their practice as are those who spend their whole time in teaching and research." The monograph is thus a complete and well documented critical review of the fundamental work on the pancreas. Medical students and physicians will find it of much interest and value.

The first chapter is concerned with the morphology of the pancreas, the development of the duct system, blood and nerve supply, and microscopic anatomy. The author points out why it is improbable that a stone at the common orifice which would close the ampulla would cause bile to enter the pancreatic ducts and possibly cause acute pancreatitis. More probable is the point of view of Popper that when acute pancreatitis follows occlusion of the common orifice the drainage is caused by activation of the pancreatic enzymes in the mixture of bile and pancreatic juice in the ampulla. The second chapter details the experimental methods which have been used by various workers. This is followed by a discussion of the properties, composition, and enzymes of pancreatic secretion, and the functions of the external secretion stimuli for the pancreas. The evidence for a humoral mechanism is given in detail as is the work on the functional innervation o fthe pancreas. the final chapter is concerned with the mechanism of pancreatic secretion.

A reading of this monograph emphasizes that much work remains to be done in the elucidation of the physiology of the pancreas. Many of the

commonly held beliefs are based on incomplete evidence and still need to be confirmed. This uncertainty is also reflected in many of the clinical impressions regarding the relation of the pancreas to various disease states. Thus, failure or deficiency of the neutralizing function of the pancreas may, conceivably, be an etiologic factor in peptic ulceration of the duodenum but its relative importance has not been finally determined.

H. S. MAYERSON, Ph. D.

Recent Advances in Nutrition with Particular Reference to Protein Metabolism: By Paul R. Cannon, Ph. D., M. D., Lawrence, Kansas, Univ. of Kansas Press, 1950. Price $2.00.

This book consists of a series of three lectures which deal largely with the subject of protein metabolism. Much of the material presented is based on research conducted by the author and his collaborators on the protein value of certain foods and the role and importance of essential amino acids in nutrition. Application of findings in recent experimental studies to clinical medicine is considered briefly.

This small book is written in a clear and interesting manner and should furnish the undergraduate medical student or the practicing physician with a good introduction to current concepts and problems in protein nutrition.

GRACE A. GOLDSMITH, M. D.

The Use of Pedicle Flaps in Plastic Surgery of the Head and Neck: By Borden B. New, M. D., F. A. C. S. & John B. Erich, M. D., F. A. C. S., Springfield, Ill., Charles C. Thomas, 1950, Pp. 104. Price, $3.00.

This monograph, written by excellent plastic surgeons, is a thorough and detailed essay on the use of skin pedicle flaps for the correction of head and neck defects. It is written in such form as to be completely understandable to the student, the young plastic surgeon, or to any surgeon who finds it necessary to correct such a defect. They discourse as to the advantages as well as disadvantages of each procedure and appraise their merit. It is also recommended to the established plastic surgeon as a very readable and dependable guide. The book is illustrated with numerous drawings, diagrams, and photographs.

GREER RICKETSON, M. D.

Acute Head Injury: By Joseph P. Evans, M. D., Ph. D., Springfield, Ill., Charles C. Thomas, 1950. Illus. Pl. Pp. 116. Price, $2.25.

Within the limits outlined by the author this constitutes an excellent and well organized review of the subject of head injuries. It reflects Dr. Evans' vast experience with these problems. The monograph is supplemented with a rich list of references to the existing literature. This book is of special interest to the neurosurgeon but its reading is recommended to every one who comes in contact with head injury patients, particularly the general surgeon and the surgeon specializing in traumatology. It also should be included in the reading list for medical students.

FRANK GARCIA, M. D.

Thromboembolic Conditions and Their Treatment with Anticoagulants: By Charles D. Marple, M. D. and Irving S. Wright, M. D., Springfield, Ill., Charles C. Thomas, 1950, Illus, Pp. 416. Price, $8.50.

The authors preface this book with a discussion of the reasons for the conflicting current reports and views concerning intravascular clotting, pointing out, among other reasons, that many discrepancies are due to insufficiently meticulous clinical laboratory determinations, while in other instances lack of understanding on the part of clinicians is responsible for divergent opinions. This monograph summarizes the pertinent present day basic observations and thoughts of responsible experimental investigators and careful clinical observers. Much attention is given to consideration of those matters about which there is debate. It is clearly stated by the authors that this publication is not a definitive presentation of either the diagnosis or treatment of thromboembolic conditions. It does not undertake teaching the diagnosis of thromboembolism nor does it purport to definitively present the matter of anticoagulant therapy. Nevertheless, in addition to the basic material presented, there is a thorough consideration of what the authors consider to be the presently logical clinical applications of anticoagulant therapy. The book contains sections on such practical matters as techniques for the administration of anticoagulants, the management of hemorrhage due to anticoagulants, failures and abuses of anticoagulant therapy and an appendix in which pertinent clinical laboratory procedures are given in detail. One section is devoted to a review of recent developments. The book is very well annotated, with 684 references. The index is well arranged and complete.

AMBROSE H. STORCK, M. D.

PUBLICATIONS RECEIVED

The C. V. Mosby Co., St. Louis: Fractures, Dislocations and Sprains, by John Albert Key, B.S., M.D., and H. Earle Conwell, M.D., F.A.C.S. (5th Edit.)

W. B. Saunders Co., Phila.: Clinical and Roentgenologic Evaluation of the Pelvis in Obstetrics, by Howard C. Moloy, M. D., M.Sc.

Charles C. Thomas, Publisher, Springfield, Ill.: Manual Therapy, by James B. Mennell, M. D.; Tobacco and the Cardiovascular System, by Grace M. Roth, Ph.D.

University Medical Publishers, Palo Alto, Calif.: Review of Physiological Chemistry, by Harold A. Harper, Ph.D. (3rd Edit.).